

A large, stylized graphic of the American flag, featuring a blue field with white stars and red and white stripes, positioned on the left side of the page.

# **SAND REPORT**

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## **Final Report on the MyLink LDRD**

Richard L. Craft

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## **Final Report on the MyLink LDRD**

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### **Abstract**

This report summarizes the work completed in the MyLink Lab Directed Research and Development project. The goal of this project was to investigate the ability of computers to come to understand individuals and to assist them with various aspects of their lives.



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## **Introduction**

Throughout their history, we have used computers as tools for understanding and manipulating our world. Rarely, however, have we used them to help us understand and control ourselves on a personal level. Even so, there is much to be gained from pursuing this capability. If computers could be made to truly understand us, a whole new world would open up. Applications of this technology are endless, cutting across virtually every aspect of our lives. When endowed with awareness of the humans that populate their world, computers gain the potential to move from their current status as tools to full partners in our endeavors.

Imagine, for example, instrumented battle gear that is able to sense when a soldier is panicked, fatigued, or becoming sick and is able to coach the soldier in order to calm him down or to encourage him to take the steps needed to care for himself. Similarly, imagine a system that learns a worker's habits – a “Friday” dedicated to that person – and is able to not only assist the worker with certain tasks but also to provide the feedback and resources needed to help that person become a better worker. In healthcare, a personal agent of this sort could challenge the doctor to which it belongs when it perceives that physician has lapsed into knee-jerk diagnosis. In education, these agents could come to understand each student's learning style and to tailor when and how different subject matter is delivered. In law enforcement, these agents could be used both to create “smart jails” as well as to act as advocates for ensuring the human rights of prisoners. Finally, personal agency might play a key a role in addressing a crisis that will soon test our nation – care of our elderly citizens.

## **A National Problem**

Within the decade America will, of necessity, be faced with the question of what to do with its aging population. By 2010, the Baby Boomers will begin to enter their Medicare years. In a 1997 hearing before the Senate's Select Committee on Aging, even the most optimistic of the expert witnesses acknowledged that, unless something about our approach to healthcare changes, we will not be able to sustain our financial obligations. Beyond simply threatening the quality of life of our elders, this situation promises to undermine the financial security of the nation. Medicare expenditures, which currently total around \$400 billion per year will, by law, exceed \$1 trillion in 2010 and will only increase from there.

Because a senior's cost of living can increase dramatically with the occurrence of certain critical incidents, such as debilitating injury or illness, in seeking ways to address the problem of our aging population, one of the most important will be doing everything that we can to enable the aging to remain functionally independent for as long as possible. Achieving this goal will require that we equip individuals to better care for themselves, that we strengthen the support systems on which these people depend, and that we help them protect themselves against incapacitating events.

While there is no “silver bullet” that will solve all of the problems that the elderly face, the confluence of current trends in computing, networking, sensing, and “intelligent”

software offer an unprecedented opportunity for preserving and extending the functional independence of our senior population. Successfully exploiting these new technologies will mean that, even in the face of debilitating conditions, many of our elders need not confront the terrifying prospect of being “discarded” in nursing homes but can, instead, continue to maintain high levels of autonomy as contributing members of society.

## **Motivation**

The goal of this LDRD project was to develop a prototype system that addressed the personal agent concept and by demonstrating the key elements that we believe need to be incorporated into future home-based elder care systems. With this prototype we intended to demonstrate how these technologies can:

- assist a person in the tasks that are part of daily life (remembering to do certain things, considering various options in a given decision, etc.),
- continuously, yet unobtrusively, gather information about the person and their environment,
- constantly analyze this information in order to assess the person’s well-being,
- enable the person to easily contact / communicate with their support network, and
- act on command of the person or, when needed, independently of the person in order to marshal needed support.

With this system, an elderly person, equipped with appropriate sensors, would be continuously monitored by a “transparent” communications and computing network in the person’s home. “MyLink” (also referred to as the “Red MyFriend” or just “MyFriend”), a collection of software agents that populate the network would continuously monitor the person’s state of health and interact with them when needed to encourage changes in behavior, when asked for advice, or when the person is in need of outside assistance (e.g., the person has fallen and is unconscious). External messaging capabilities would allow both the person and MyFriend to contact people in the person’s designated support network when wanted or required. Logging of physiological data and assessments of this data, combined with Web service, would allow people in the person’s support network to check in on the person as needed in order to see how things are going for them. Finally, if time and resources allowed, this effort would attempt to integrate bi-directional communications into the person’s status monitor so that the person could readily interact with people in the support network.

## **About This Paper**

As is described in the following pages, where the project ended up differed in scope from what was planned. Originally envisioned as a lab demonstration, an opportunity to deploy and evaluate MyFriend in a real-world setting resulted in a shift in the final concept pursued. The purpose of this document is to describe the original concept and architectural approach intended for MyFriend and to describe how this concept changed over the course of the project. The final section of the document highlights lessons learned from this effort. Appendices are included that contain the storyboards used to illustrate what a rich MyFriend environment might look like

## The Plan

Given the limited time and limited funds available for this effort, it was decided initially that the project would pursue a narrowly focused effort as described in this section. To this end, the demonstration would consist of four parts:

- showing how data about a person is acquired,
- showing how MyFriend develops an understanding about what is “normal” for the person and how MyFriend interacts with the person,
- showing how MyFriend can interact with a person’s support network, and
- showing how MyFriend can access external “services” on behalf of the person.

While trends in technology point to a different future, for the purposes of this demonstration it would be assumed that MyFriend resided in the home of its owner. While the person is in the home, MyFriend would continuously acquire information about the person’s physiological state and about their habits (where are they within the house and when and what are they doing). This information would be logged in an archive held by MyFriend and used to develop a profile of what is normal for each day of the week (e.g., “my person normally eats dinner at this time on Tuesdays and goes to bed at this time on Sundays”). Using information derived from the person’s environment, MyFriend would also develop information about a person’s preferences and interests (“she always watches Diagnosis Murder and has recently checked out books from the public library on the pioneers and New Mexico history”). The MyFriend profile would also contain information about the person’s history, personality, and social network (“Where were you born and where did you grow up?” “What did you do for a living?”

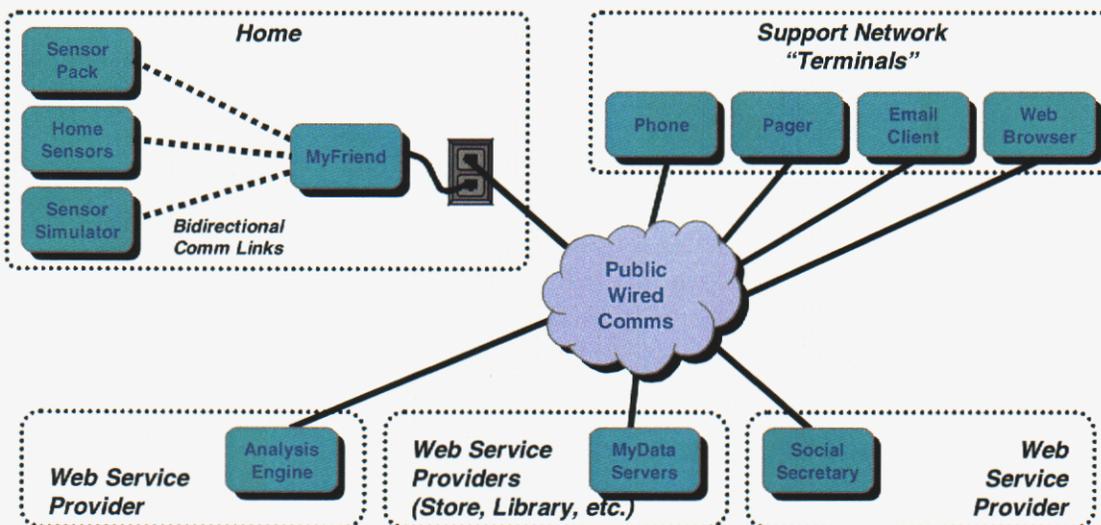


Figure 1. Logical Target Demonstration Architecture

“What are your interests / hobbies?” “What are your social preferences – do you like big gatherings or do you prefer a quiet evening with a few friends; are you energized by being out and about or do you refresh yourself through time alone?” “With whom do you socialize and what do you like to do with each of these people?” “On whom do you depend for ...?” “Who do you trust with your secrets?” “When it comes to making hard

decisions, is there anyone that you want involved?”). For the purposes of this demonstration, the above information would be acquired from:

- a suite of sensors worn by a person and
- a PC-based simulator that generated:
  - all of the data that might be gathered from sensors and smart devices throughout the home (e.g., when a person enters and leaves a room, when the refrigerator opens and when the stove is running, when the TV comes on and which channels are on at a given point in time),
  - data related to the person’s interactions with various organizations outside the home (e.g., what food items the person buys from the grocery and from restaurants or is provided by a meal program, what books the person checks out from the library, what kinds of flowers the person buys at the flower shop),
  - and direct interactions with the person via MyFriend’s interface device (e.g., MyFriend might ask, “Jim, where were you born?”).

Using this information, MyFriend would develop, over time, a sense of what is “normal” for the person to which it belongs and then monitor the person for signs of “need”. When such a need would be detected, MyFriend would identify potential courses of action and then pursue them. For example, if the person’s dietary habits seemed inadequate, MyFriend might offer to help the person develop a more balanced meal plan. MyFriend might also help with certain aspects of daily living – “Jim, Diagnosis Murder is on in two minutes. Do you want me to shut down the house and turn on the TV in the den?” or “Your daughter’s birthday is next week, do you want me to add a birthday card to your Wal-Mart shopping list?” When instructed (e.g., by the push of a “panic button” worn by the person), MyFriend would marshal needed support (e.g., calling a family member or neighbor or alerting emergency services, such as police or ambulance). While MyFriend would normally leave the final decision for action to its person, when MyFriend determined that its person was in need of assistance, it would act unilaterally to marshal support.

For the purposes of this demonstration, the MyFriend intelligence would reside on a single board PC in the person’s home (the same PC used to log all data generated by the various information sources). As part of building a collaborative relationship with BodyMedia (a company to whom we were talking who was researching similar concepts), we would try to use their web service as an external analytical engine for analyzing the kinds of wellness data that they handle. The results of their analyses would be returned to MyFriend and used as a basis for interacting with the person (e.g., recommending a more regular bed time). For reaching out to the support network, the demonstration would use computer-driven voice messaging and email. Subject to the permissions that a person established for their data archive and profile, MyFriend would also allow people in the person’s support network to browse this data in the same way the person himself could review it using MyFriend’s interface device.

As a final demonstration concept, a person could subscribe to a “networking” service that helped them find others with similar backgrounds and interests. Using whatever

information the person was willing to expose from their profile, the service’s “social secretary” would establish correlations with other people in the group and allow the person to find out about and “meet” other people with whom they may had something in common. This meeting might be on-line or in face-to-face settings (“How about if we meet at the Senior Center on Tuesday morning?”). The social secretary would also be aware of various events (Bridge Club, classes, e-saging opportunities, etc.) that were available and could help the person get hooked into these. For the purposes of this demonstration, this would be implemented as an outboard computer located “somewhere on the Net” whose services were accessed via MyFriend’s interface.

## How This System Might Be Implemented

Figure 2 depicts what was suggested for the organization of the in-home portion of this demonstration’s hardware architecture. Commercial, off-the-shelf physiological sensors to would collect heart rate, blood oxygen saturation, and body temperature data. A sensor from BodyMedia might be included to add information related to motion and level of exertion. A panic button would generate “call for help” and “cancel that call” messages and would be connected to MyFriend by a BlueTooth RF link. A simulation running on a personal computer would provide the kind of data that would be generated by sensors and various subsystems in the home as the person moved around the home. Since the BodyMedia sensor uses Bluetooth communications, both the PALCO sensor and the simulator could be outfitted with Bluetooth transceivers to allow them to communicate with the single board computer that hosted MyFriend and its sensor data archives. The home itself would be wired with an internal IP-based network (either twisted pair or wireless). Devices on this network would include the single board computer, a MyFriend interface device (most likely a HAVi-enabled TV – i.e., a new generation TV capable of running Java applications locally), and a home gateway that would connect the home network to the Internet.

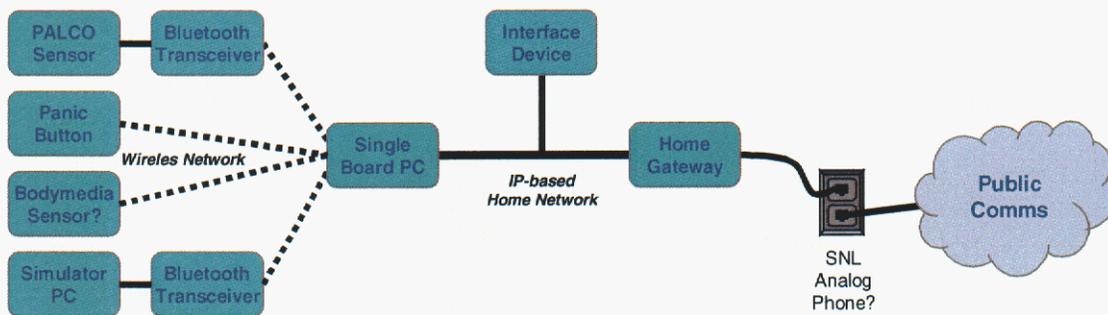


Figure 2. Hardware Architecture for Home

Figure 3 depicts what was suggested for hardware design for the rest of the system. Both the PC and the cell phone would belong to the support network. The intent was for these devices to be off-the-shelf configurations that required no special software or hardware to work with MyFriend.



Figure 3. Hardware Architecture for Support Network

Figure 4 depicts the software architecture proposed for the MyFriend computer. Messages from the Bluetooth, X10, and external organization data servers would be received by their respective interfaces and passed to a central message parser that handled all data source related message traffic. The message parser's job would be to move the data contained in these messages into the data archive and to alert the appropriate digest engines and comparators of the arrival of new messages for which they were subscribers. Each digest engine would exist to support a specific kind of data analysis. Using data from the data archive, a digest engine would extract "meaning" and "norms" and place the data in the user's profile. An example of extracting "meaning" might be interpreting that a microwave oven has turned on at a given time indicates that the preparation of dinner is underway. Looking at the time that the bedroom light goes off every night and concluding that a few minutes past 10 PM is a normal bedtime is an example of extracting a norm for the person being observed. The archive / profile browser interface would enable aid an external application (such as those running on the MyFriend interface device) to navigate these repositories and to retrieve selected information from them. The interviewer represents the body of software that would be used to retrieve profile information about a person that could be retrieved by simple monitoring techniques. The comparator configuration interface would allow each comparator's trigger conditions to be set (where this makes sense) and to determine what actions are to

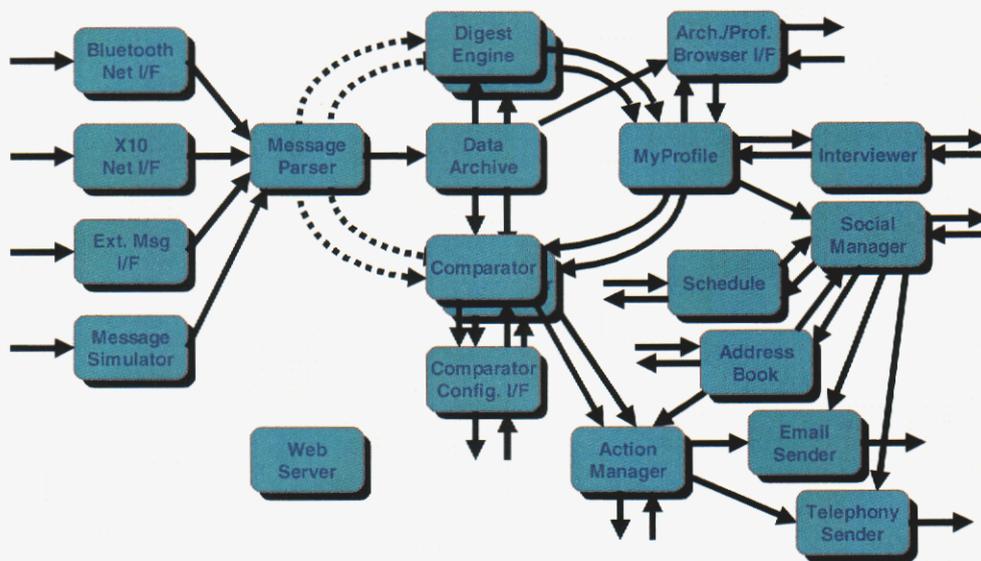


Figure 4. Logical Software Architecture for MyFriend Stand-alone Computer

be taken when a given comparator fires. As with the archive / profile browser interface, this functional block would assume that actions were being controlled by a user interface that was not part of the MyFriend single-board computer. Initially, the demonstration system would provide four actions that a comparator could initiate. These included sending an email message to designated recipients, sending recorded voice messages to specified phone numbers, sending an XML document to a specified web service, and causing the interviewer function to ask a question related to analysis just done by the comparator. It was expected that the email and telephony actions would be generalized “scripts” (e.g., “Transmit message X to recipients A, B, and C using the email sender”) that would be processed by the action manager into formats usable by the media specified by the scripts. The email sender would exist to take the message “documents” generated by the action manager in response to the processing of scripts and to convert these documents into email messages and to then send them out via email to the recipients specified in the documents. The telephony sender would do the same for recorded voice message documents created by the action manager. In support of the document creation process, the address book would supply the action manager with required email address and phone number information for designated recipients. The address book structure could also be browsed using off-board user interface devices. Similarly, the action manager would provide for editing and browsing of scripts by external devices. The social manager function would be used to browse social secretary servers (as described earlier) in accordance with a person’s schedule, profile data, and retrieval rules set by the person and to post the person’s own “personal ad” to a social secretary server. Data retrieved from a social secretary server could be browsed from an external user interface device as could appointment data stored in the user’s schedule. Beyond this, the MyFriend software would maintain access control information (not shown) on each of the externally visible interfaces that would govern which users could have access to which services and which data on the MyFriend platform. Finally, it was expected that the MyFriend computer would most likely implement a web server that would serve up web pages for each of MyFriend’s external interfaces (i.e., the archive / profile interface browser, the interviewer, the comparator configuration manager, the address book, the schedule, and the social manager).

## **An Opportunity**

After laying this initial plan, the team concluded that, if this demonstration was nothing more than a lab exercise, then the ability to monitor a real human was much less important than developing software that could take sensor data and begin to “learn” about a person. Given this, it was decided that the simulator would become the exclusive source of data for this exercise.

Then, in discussions about how to build the simulator and about how to build the agents that would develop a profile and watch for deviations from the norm, one of the team members challenged the simulator-only approach and suggested trying our ideas out in a real-world laboratory – specifically, an assisted living facility with which members of the project team were familiar. As this idea was pursued, it led to a revised demonstration concept.

The facility on which the LDRD team focused is designed to provide a communal living environment. Homes on the campus consist of private living suites grouped around common areas. Both the suites and common areas are instrumented in ways that allow the campus' computing environment to track the whereabouts and activities of individual residents. This instrumentation also extends to the campus grounds. The goal of this instrumentation is to provide a safety net for those residents who need it (e.g., those with dementia who might wander off) while providing as much autonomy as possible. For example, if a patient has a tendency to wander, the computing system that monitors campus activities can notify one of the live-in caregivers when the patient is wandering and can even act unilaterally to encourage the patient to not wander off. In contrast to this, for another patient, fully in control of herself, the computer will respond differently when the patient exhibits the same behaviors as the wanderer, allowing her to freely move around the campus without caregiver alerts or computer system intervention.

While this is a powerful capability (one resident who had been living in a lockdown situation is now functioning securely as a member of the facility's "family"), delivering these capabilities required that facility staff "hard code" these computing system behaviors for each person living on the campus. Given that the goal of MyFriend was to allow a computer to automatically learn about an individual, the coupling of Sandia's research with the facility's infrastructure seemed like a natural match.

After preparing the storyboard shown in Appendix B, project members approached the management of the assisted living facility with their proposal. After initial discussions with them yielded a favorable response, the MyFriend team went to visit the facility to learn more about the details of the existing technical infrastructure and to discuss what might be done to try out the MyFriend concept. Based on these discussions, it was decided that developing a MyFriend capability focused on monitoring activity level and encouraging activity when it was chronically low would be a good initial activity. More than any other data item collected at the facility, this was viewed as being the best early indicator as to when a person might be doing poorly and also the best mechanism for encouraging exercise among the residents.

## **Building A System For Encouraging Activity**

Monitoring of a person's location at the assisted living facility is accomplished using a combination of "smart tags" that uniquely identify each resident and caregiver and motion detectors and door sensors that indicate general activity in an area without specifying who or what is causing the activity. The staff's idea was to have MyFriend monitor how far each individual moved during the day and when and where this movement occurred. When MyFriend believed that it had arrived at an understanding of the movement patterns of a person being observed, it would then switch to coaching mode where it would interact with the person to set activity goals and to monitor how the person was doing relative to those goals. In addition, alarm rules would be set that would cause a message to be sent to caregivers when a person's behavior deviated significantly from the norm (a possible indicator that something is wrong with the person).

In support of this work, it was agreed that the assisted living facility would send some raw data collected from its monitoring system so that Sandia’s programmers could figure out how to enable MyFriend to read this data. Unfortunately, the data that was sent was not sanitized (i.e., made so that the Sandia staff could not later deduce to whom each record belonged). Recognizing this fact, the CD containing the data was returned to the assisted living facility to be rewritten without identifiers. In the meantime, the programmers generated a dummy data set (on the assumption that routines could be written to convert from the real format to the dummy format that they established) and created an initial MyFriend application. Figure 5 shows the home page for the MyFriend product developed in this effort. While the assisted living facility infrastructure was based on Visual Basic applications, it also allowed for easy launching for other applications. Given this, the Sandia team chose to implement MyFriend as a browser-based Java application. In part, this was to help lay the groundwork for a more portable suite of applications than a Visual Basic approach would have allowed.

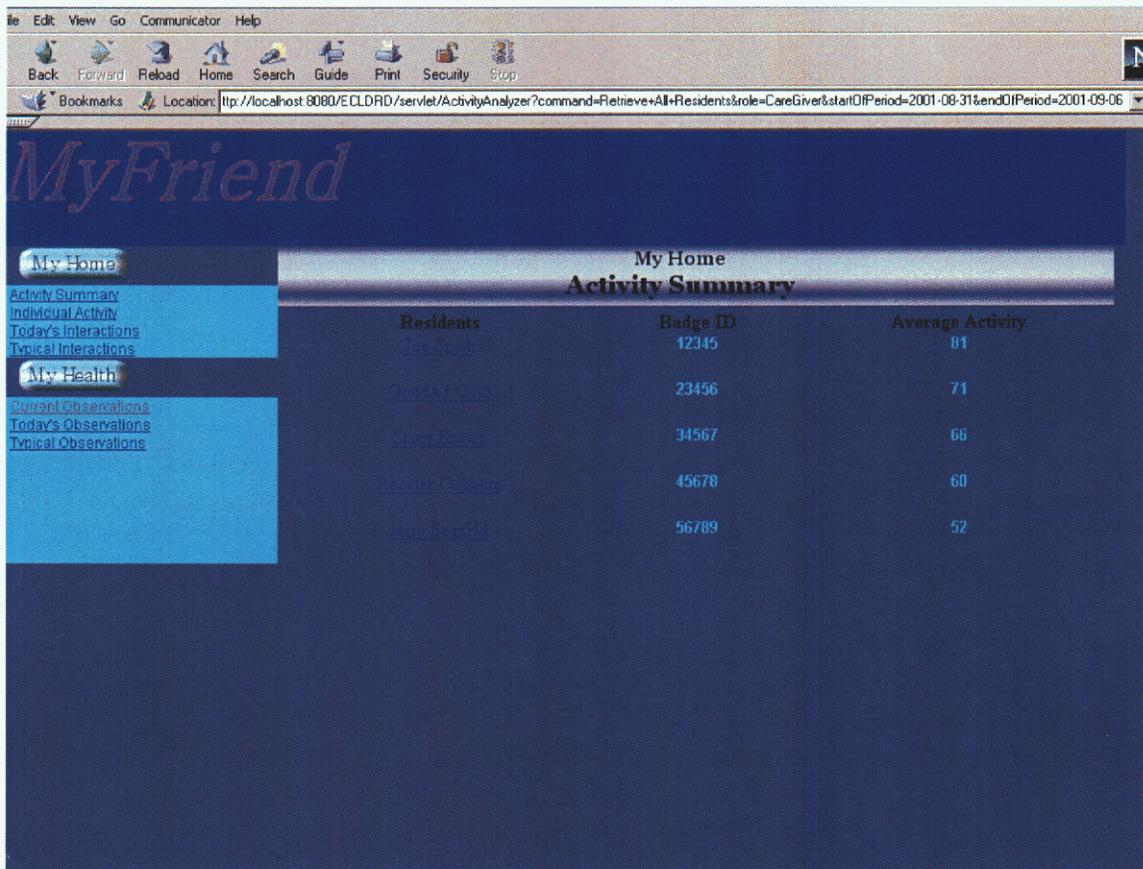


Figure 5. Screen Shot of MyFriend Home Page

### ***Moving Toward Fielding***

Upon completion of this programming effort, the plan was to install MyFriend at the assisted living facility and to evaluate its operation in this context. The assisted living facility staff had hoped to use it as the basis for a competition between the several houses on campus (“Let’s see which house can show the best improvement this week”).

Installing MyFriend would require the approval of Sandia's Human Studies Board. Initial attempts at gaining approval were met with misunderstanding on the part of the board members regarding what we were trying to accomplish. The fact that MyFriend was the first project to be run through the Board's new approval process compounded the difficulties. When 9/11 rolled around and Sandia's focus turned to terrorism, efforts to pursue installation stalled and have not been resumed since.

## **Conclusions and Recommendations**

In the course of performing this work, it became clear that, while the concepts that are embodied in this effort are valid, there is much that remains to be done before they can be realized. Currently, the infrastructure required to support this kind of environment is too expensive to allow wide-scale deployment. Second, the number of things that a computer can monitor currently about a person in everyday settings is extremely limited. While video is a popular and inexpensive monitoring tool, it is problematic in as much as the ability to extract "understanding" from the data stream is still limited. Most current physiological measurement devices are meant for use in specialized settings (e.g., the clinic or the hospital lab) by trained technicians and do not lend themselves to day-to-day life. Finally, the ideas and architectural approaches proposed in MyFriend are baby steps toward the final goal. Even if devices existed that allowed computers to observe everything that could possibly be observed about humans, computer science has a long way to go in creating systems that truly understand people. Given these things, several follow-on efforts would be of use in moving us in that direction

### ***An Open Architecture for Smart Homes***

In the course of doing this work, the Sandia team met with researchers at the Intel Architecture Labs to discuss the work that each organization was doing in this area. Intel is funding several smart home and elder tech project around the nation. After briefing the MyFriend work, Sandia was invited back to Intel to take part in a meeting where each of the Intel-funded research teams discussed their work and in which Intel brainstormed with these groups about necessary future directions.

During these discussions, it became obvious that each group was functioning autonomously. As a consequence, efforts that should have been related seemed to be producing wholly independent (and non-interoperable) products. To address this situation, it would be tremendously useful if a critical mass of researchers in "smart spaces" could be enlisted to the task of creating a standardized infrastructure for collecting and processing observation data in a human-occupied space and for interacting with the humans in this space.

### ***A CAD Tool For Agent Investigation***

Realizing a capable smart home will depend on success in three areas: deploying a rich affordable perception capability (i.e., a diverse collection of sensors and associated information extraction processes), delivering a set of truly intelligent agents, and creating mechanisms that allow people to interact naturally with these systems. While most smart home efforts have pursued their research in the context of real (i.e., physical) "smart homes", this approach suffers from a couple of key shortcomings. First, the range of

sensors that can be deployed is extremely limited. Second, producing physical things is quite expensive.

As an alternative to this, a smart home computer-aided design tool would of use. The tool would allow for the three-dimensional design of building spaces and the emplacement of simulated sensors in these spaces. Simulated people (modeled by intelligent agents) would be run through these spaces in ways that match “normal living” and the sensors would be allowed to monitor these test subjects. The CAD tool would be architected in such a way that data generated by these simulated sensors would be presented to the agent portion of the system in a way that would fool the agents into thinking that the data came from real sensors. Given this framework, the tools would allow engineers to design real agents using a suite of standardized building blocks (e.g., agent-to-agent communications, agent-to-sensor communications, and agent-to-human communications) and custom programming. In this way, as the simulated people went about their daily business, the agents would react to the data stream and interact with the humans, thereby allowing real-world agents to be developed and tested in a variety of settings. Because the sensors are simulated, this approach allows new sensors types to be postulated and evaluated to determine their value in a smart home environment. Those showing promise would become candidates for prototyping and evaluation in real world physical environments.

### ***The Observable Human***

While there are many things that might be observed about a person, it is not currently clear which observables would be the most valuable to collect. Also, even if certain observables were valuable, it might not be possible to re-engineer existing devices to make them cheap enough, small enough, or rugged enough for widespread deployment. A project geared toward identifying concepts for high payoff, easy-to-engineer monitoring devices would be of tremendous value to this effort.

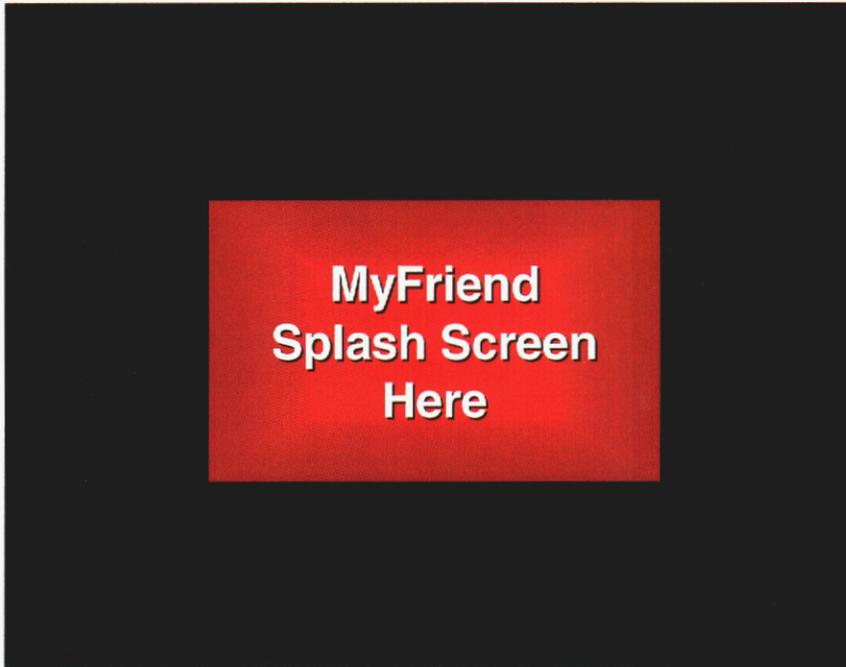
### ***It's Not Just About The Elderly***

As was noted in the introduction, while the problem focus of this LDRD was assistance to the aging, the technical issues that this LDRD proposed to address extend well beyond eldercare. The more general problem technical here is how to more tightly couple the human and the cyber worlds. Today, computers are largely ignorant of the people that populate their worlds. Although they can digitize data from peripheral cameras, they generally can't tell what the stream of pixels that they are processing means. While they can store readings collected about various people, they have only the shallowest understanding of the “state” of these individuals. If these shortcomings could be overcome, then a range of problem domains, such as automated combat systems, physical security, and advanced manufacturing – anything that involves flow of information between humans and computers – would benefit.

For this reason, Sandia should pursue development of a “human systems” technology program. This thrust would complement existing S&T efforts in microsystems, modeling and simulation, computing, and robotics. The products of this program area would include the software, devices, and science needed to allow seamless integration of

## Appendix A: Full Storyboard Concept

To provide a sense of how MyFriend system might operate from a user's point of view, the following storyboard was developed. While the project team never intended to implement all of the capabilities implied by the storyboard, they were included to provide a sense of the degree to which a MyFriend-like capability may integrate itself into a person's life.

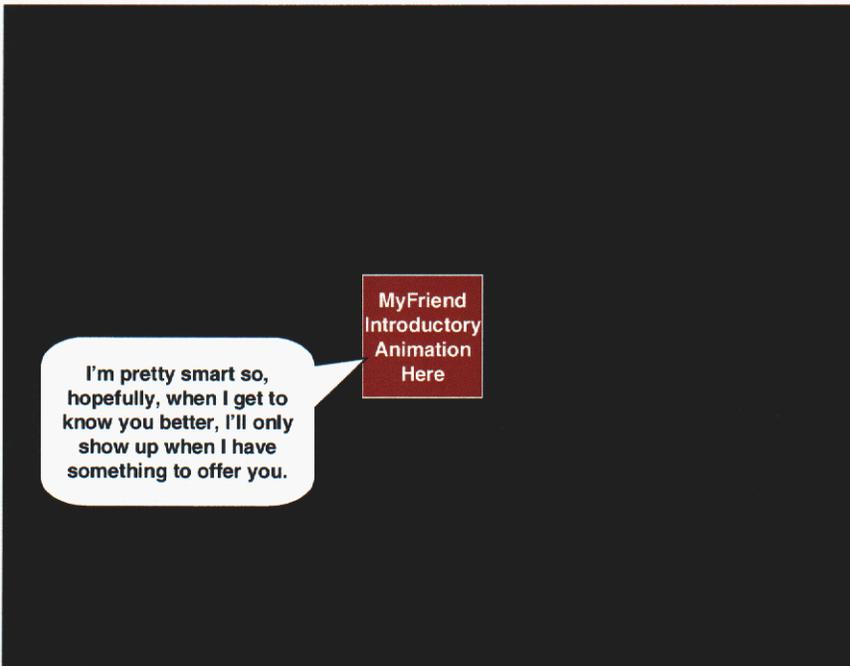
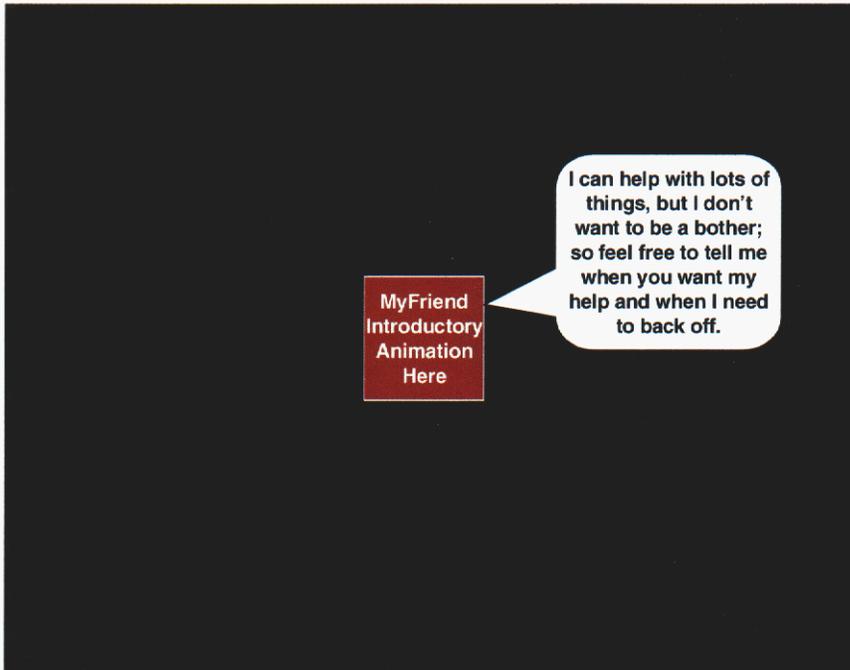


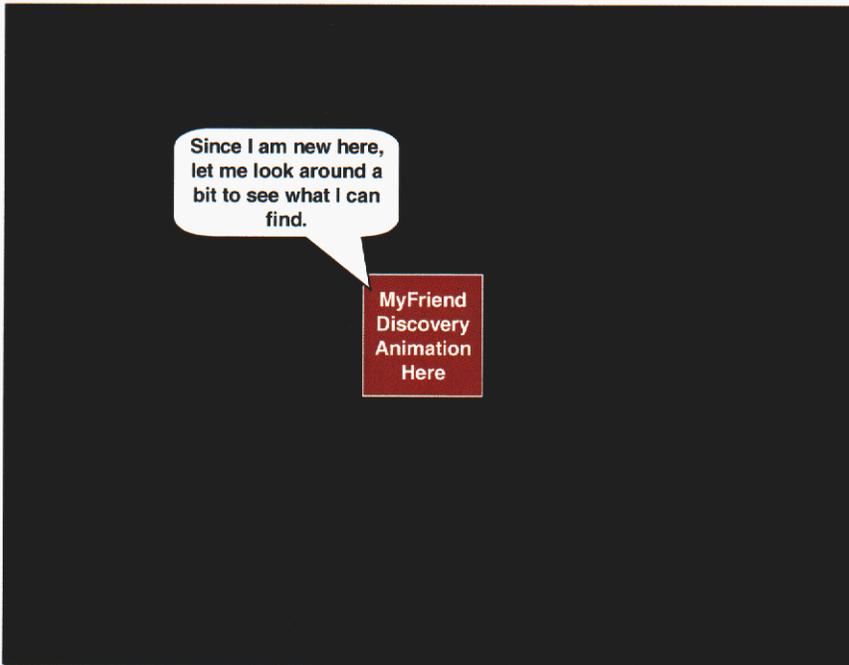
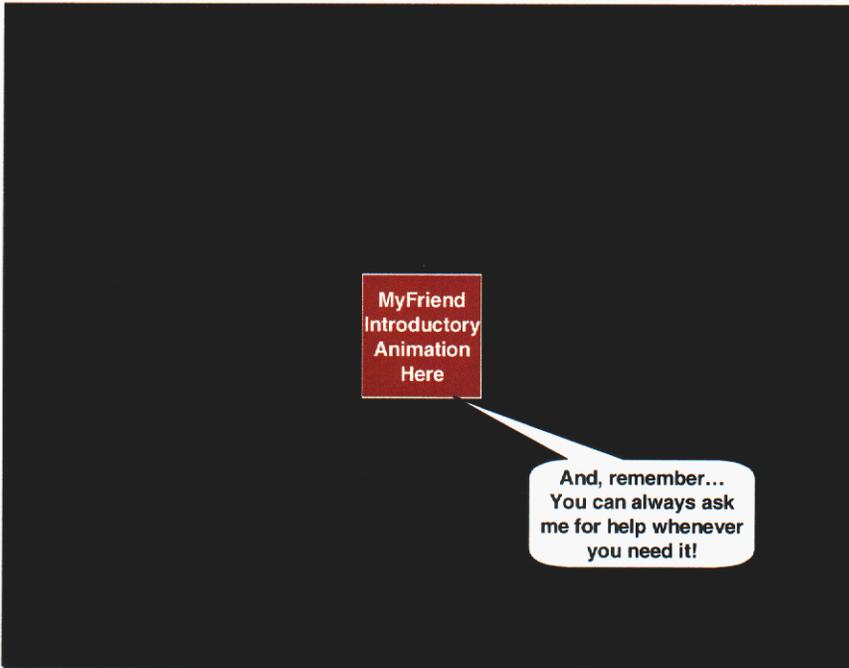
*The MyFriend application launches (the box shown here is to be replaced with a logo and potentially augmented with sound).*



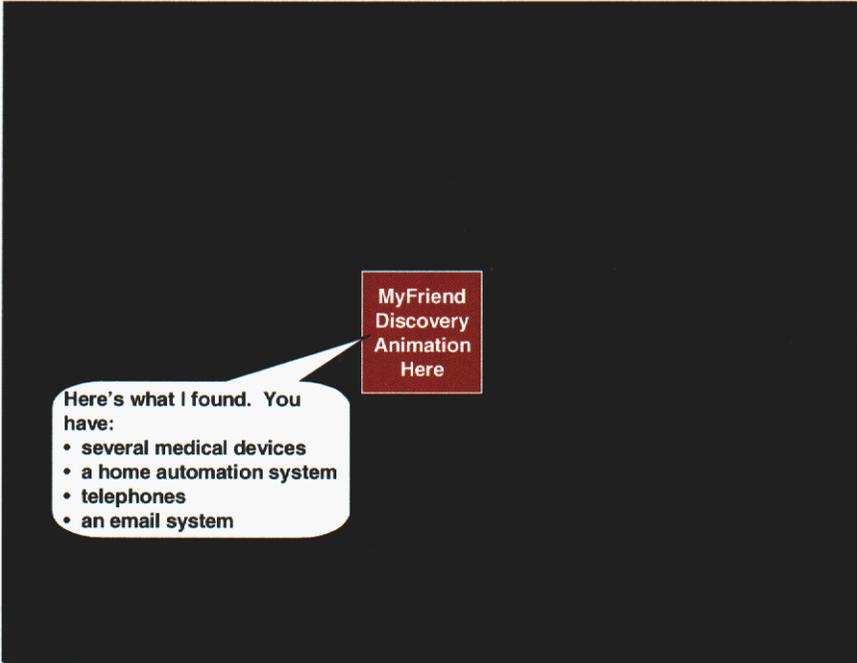
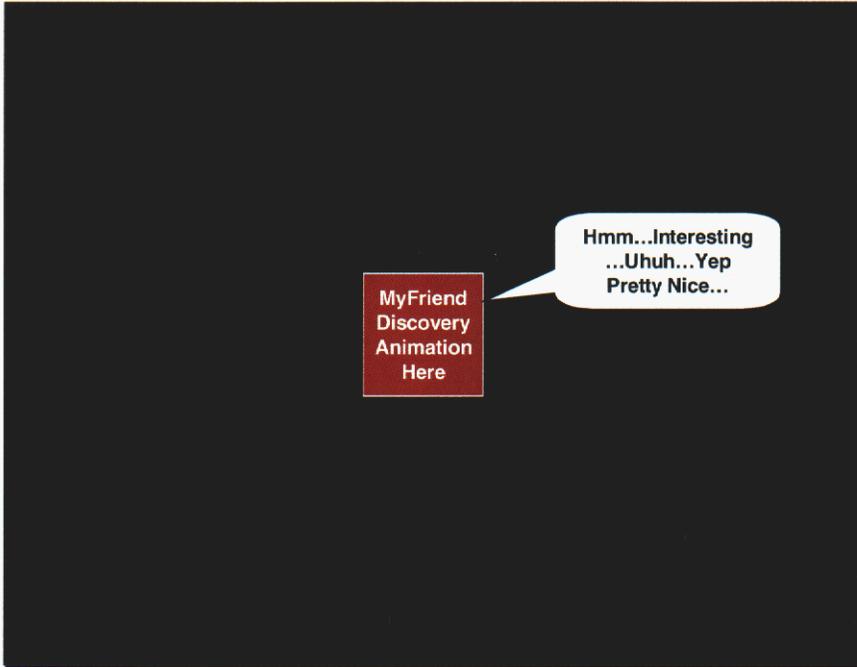
*Animated character (like the professor or cat or dog in Microsoft office) appears and introduces himself (may be done with both text and audio).*

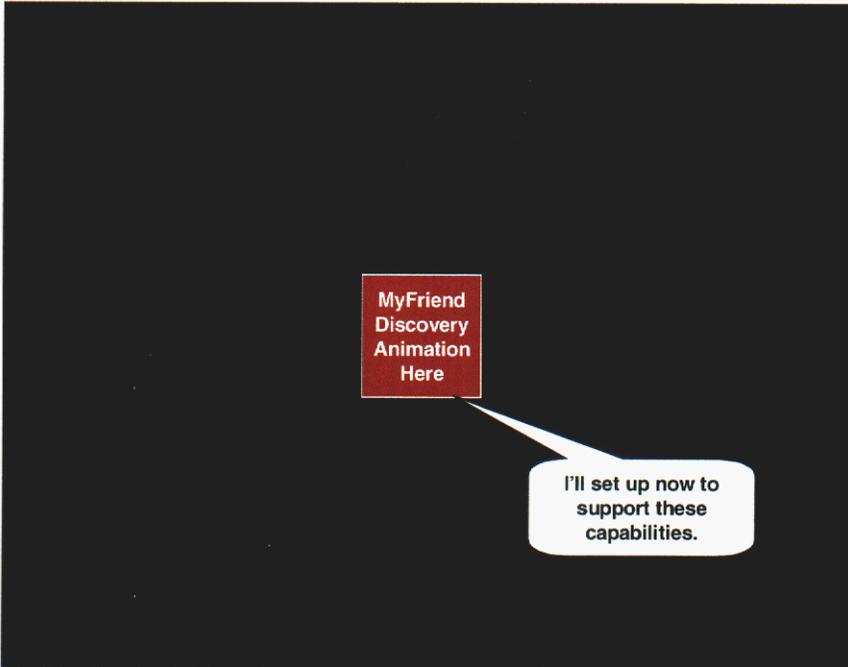
*Character begins to do explain his purpose to the user.*



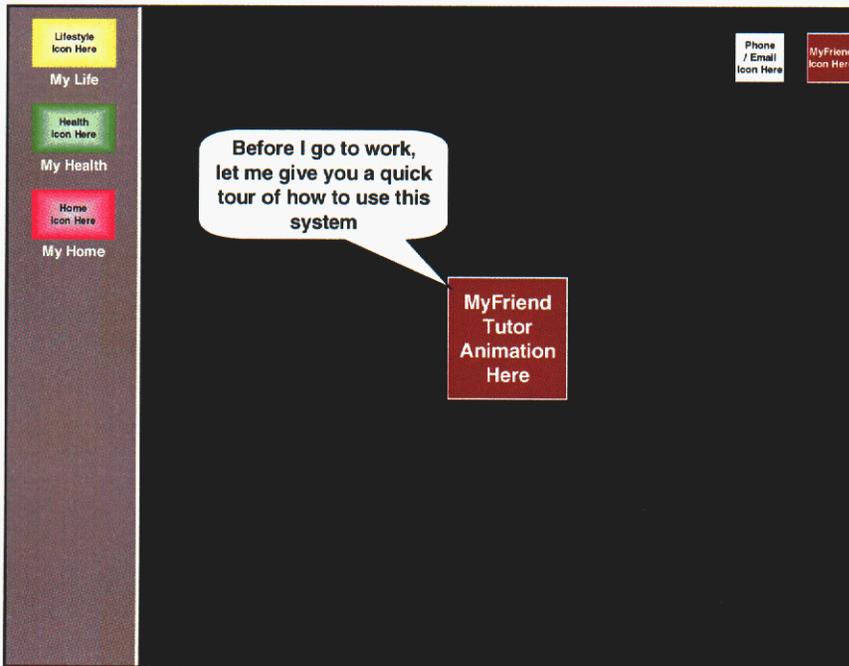


*MyFriend software begins to explore the user's computing environment so that it can integrate with whatever other services exist.*





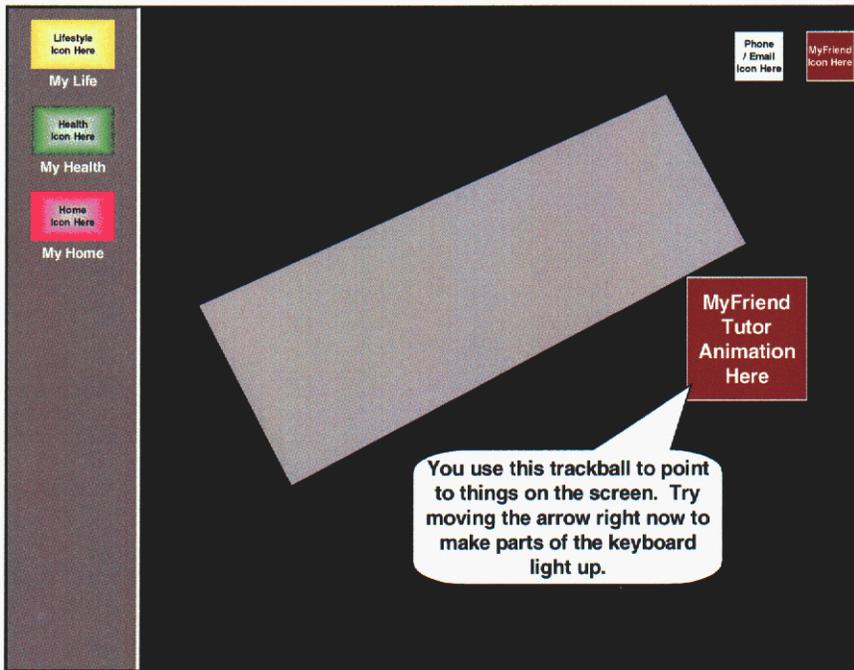
*MyFriend software integrates itself with the applicable services that it found.*

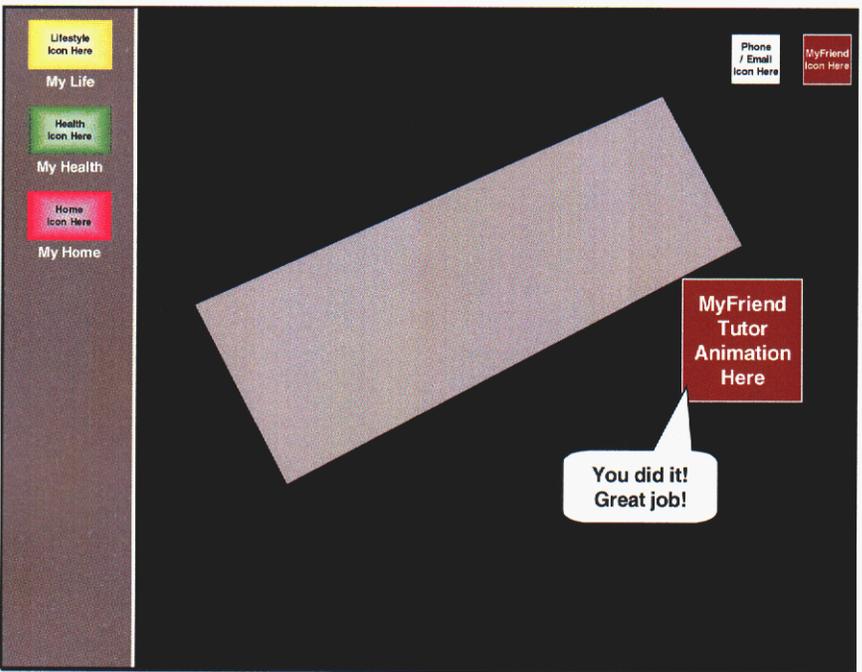
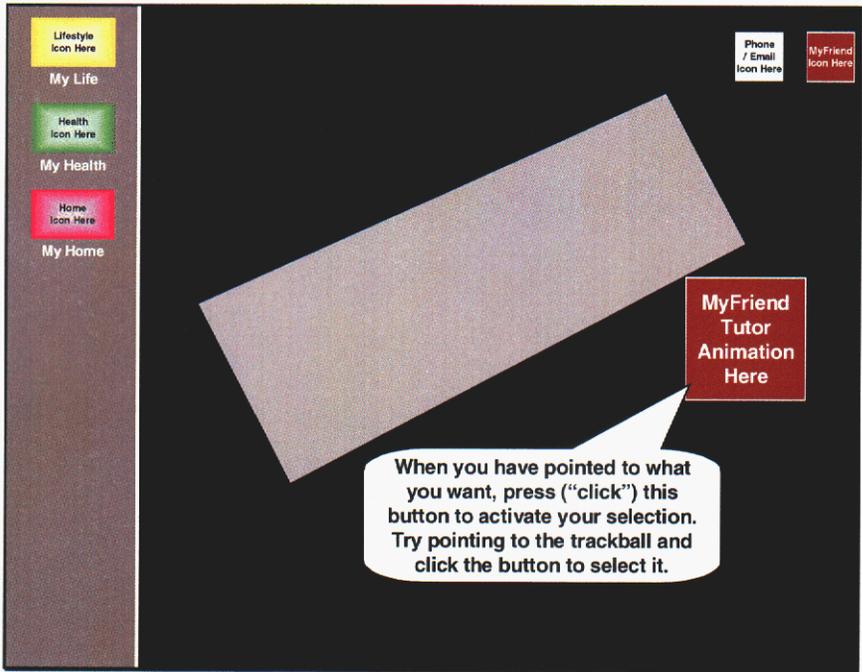


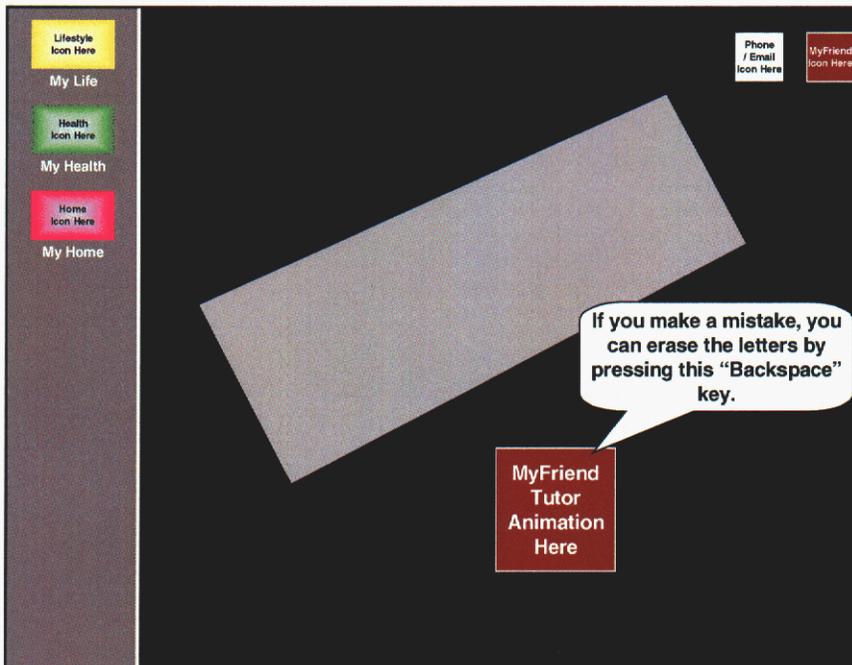
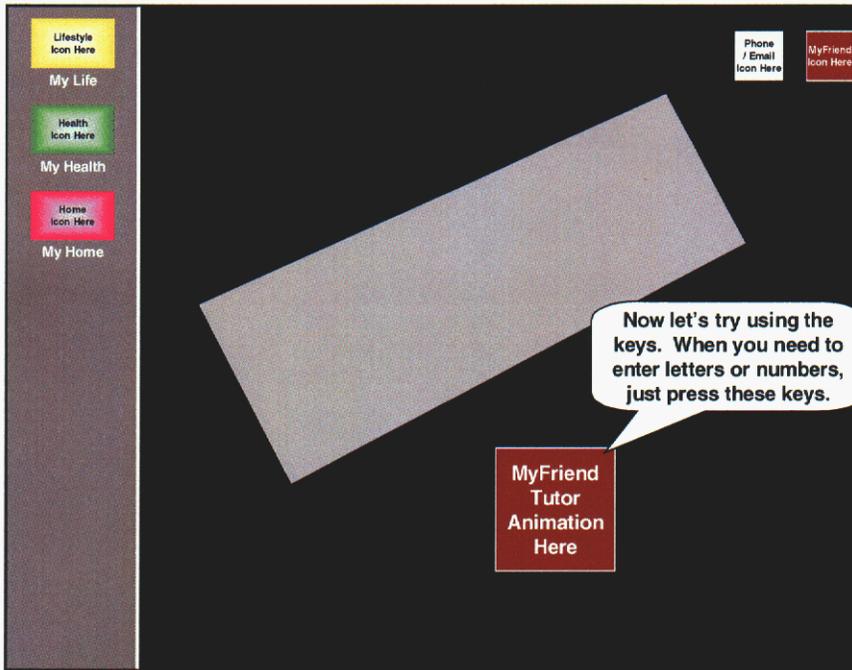
*MyFriend begins a tutorial introducing its capabilities*

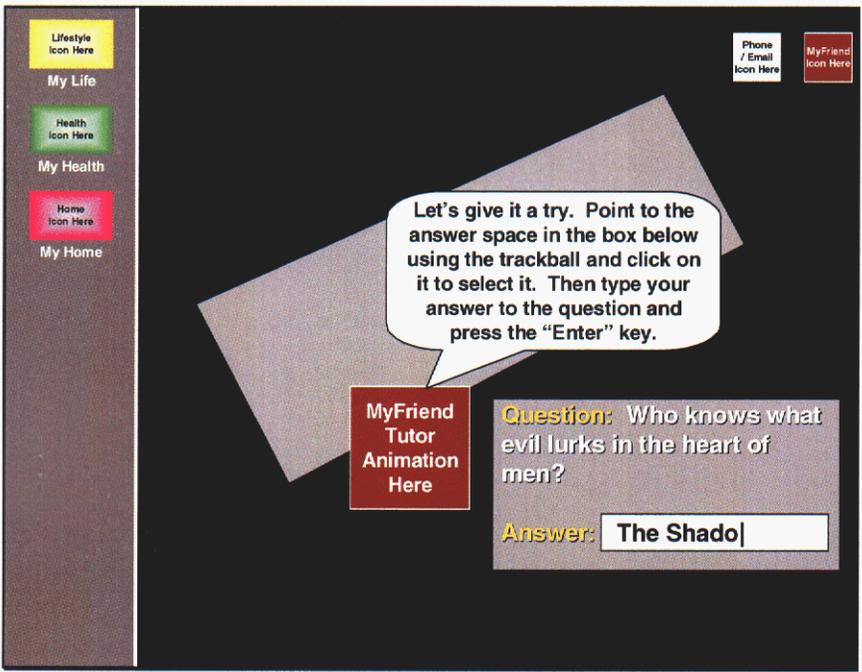
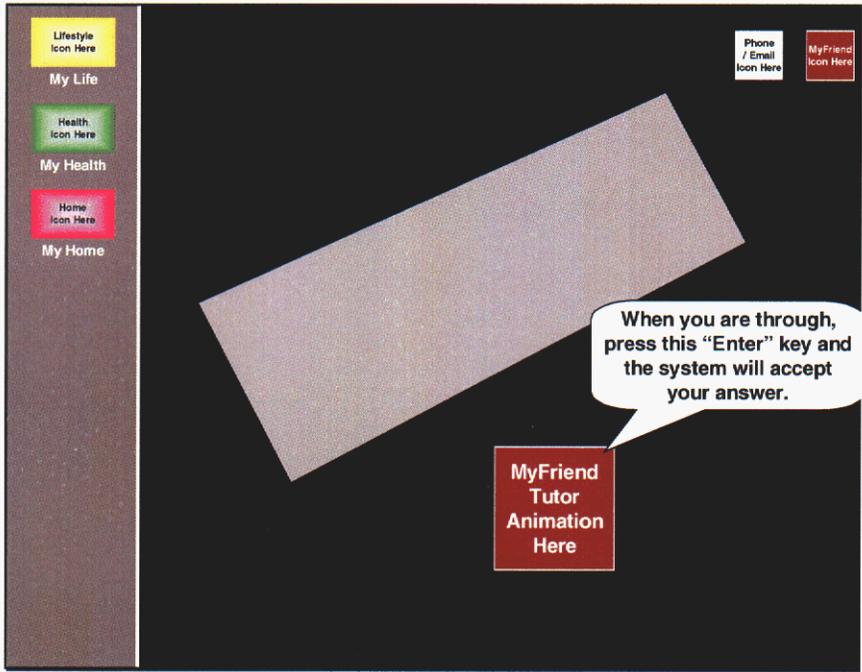


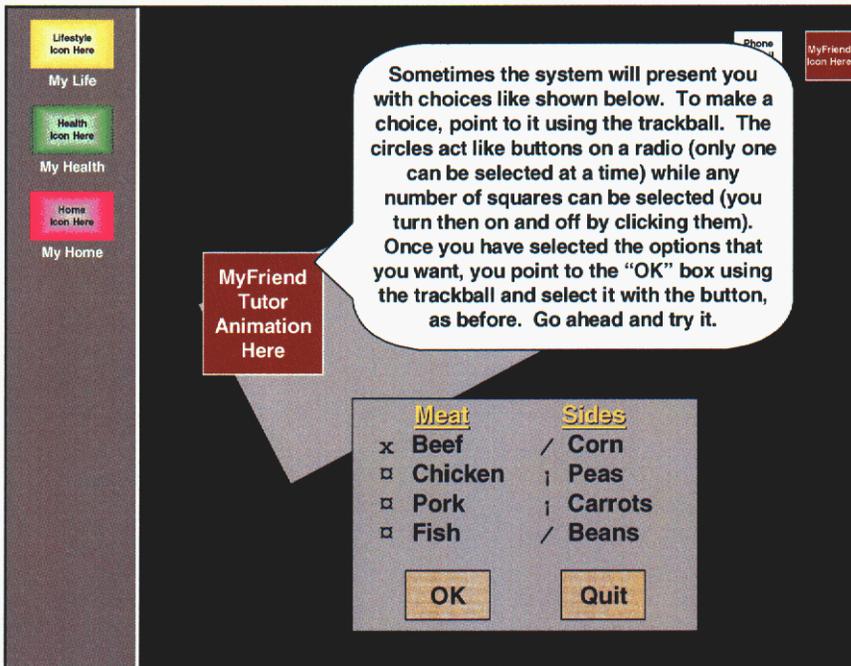
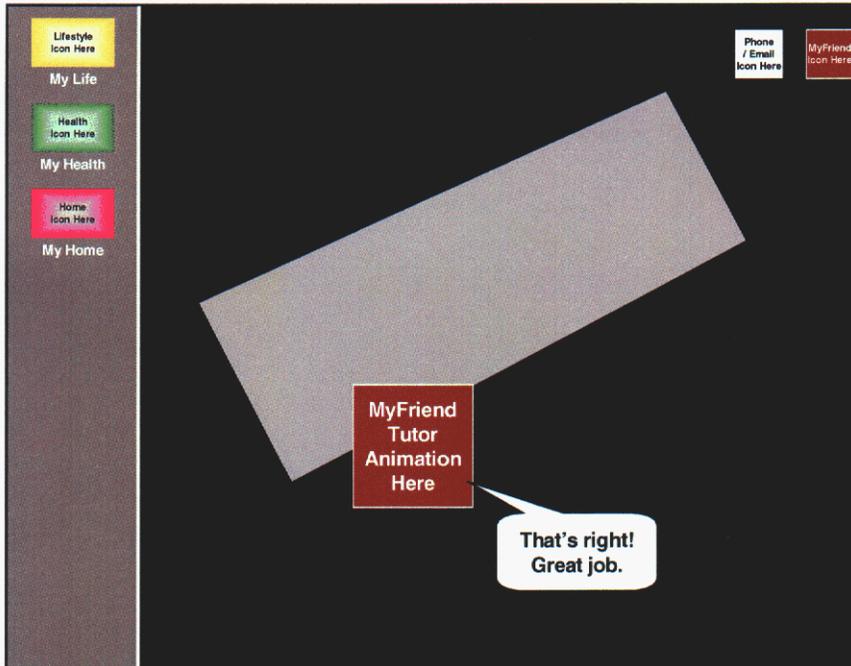
*It starts by introducing the input devices and user interface constructs (i.e., menus and buttons). The gray bar is a picture of an integrated keyboard and trackball.*

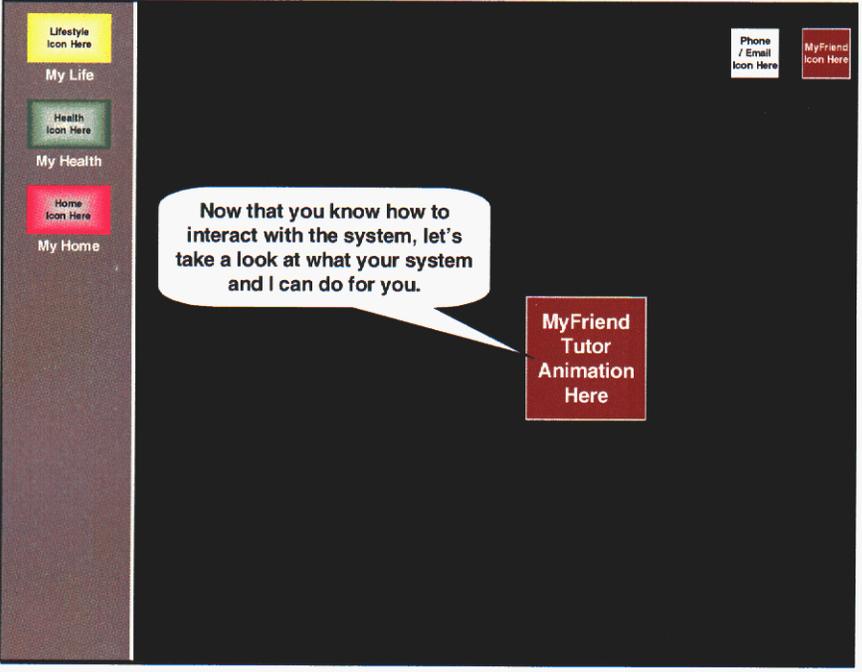
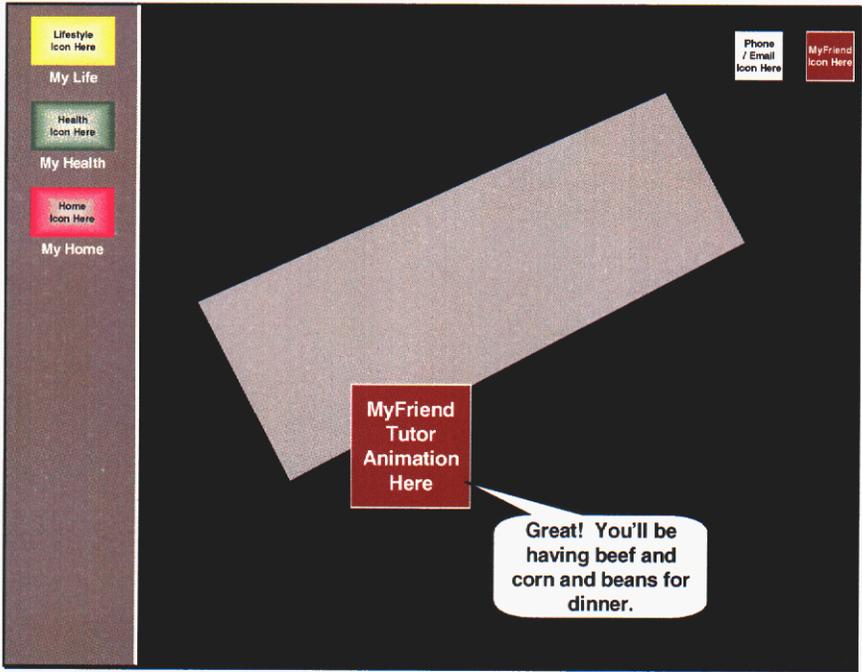




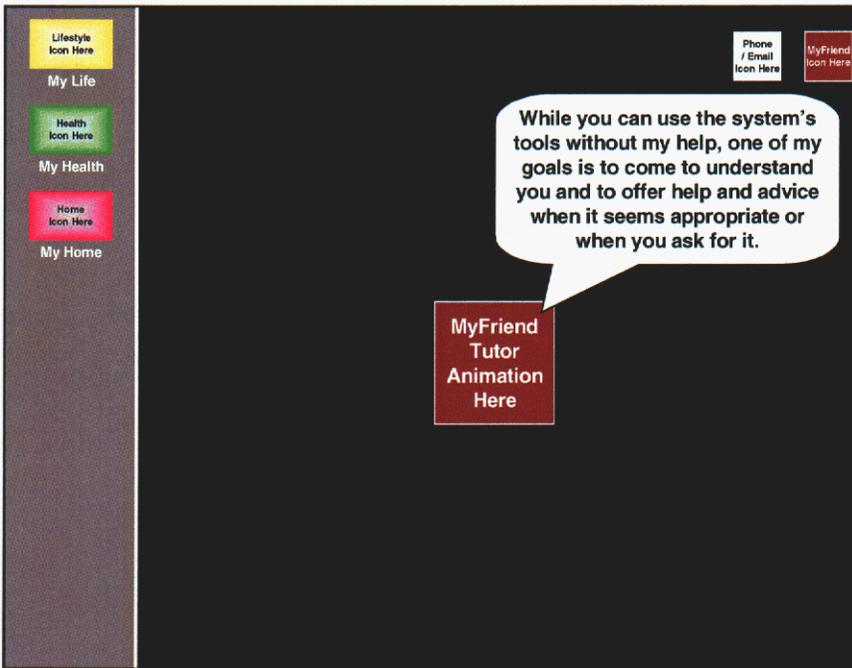
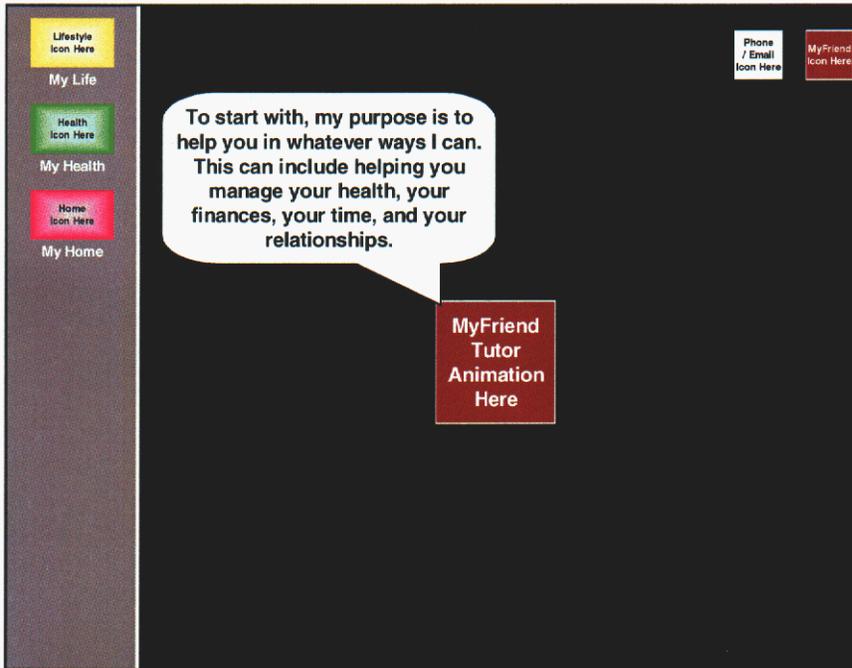


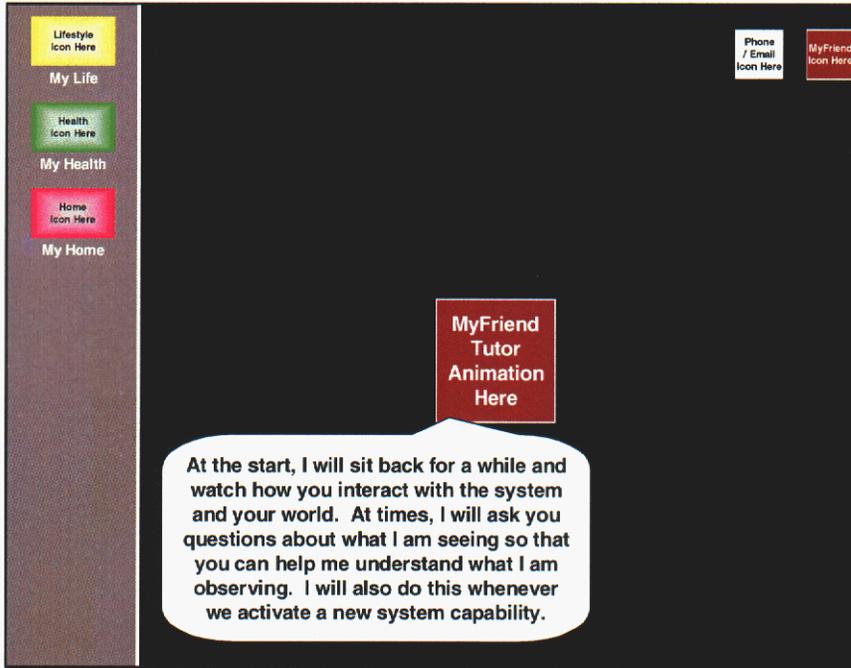




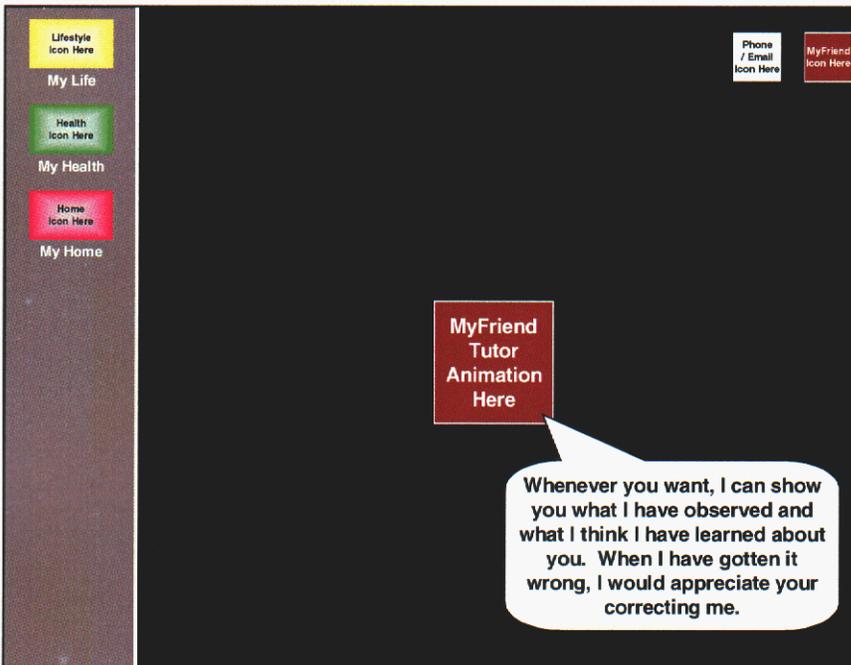


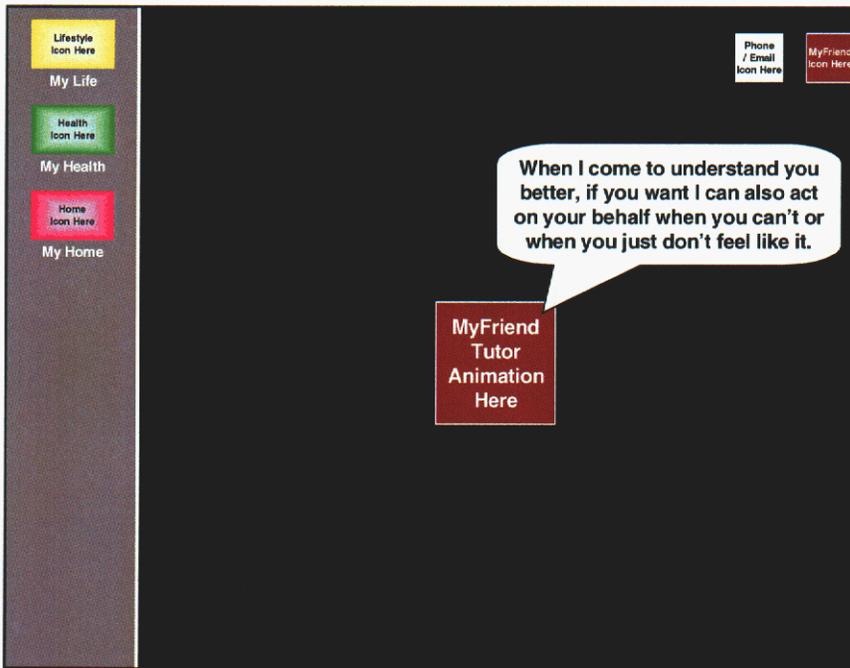
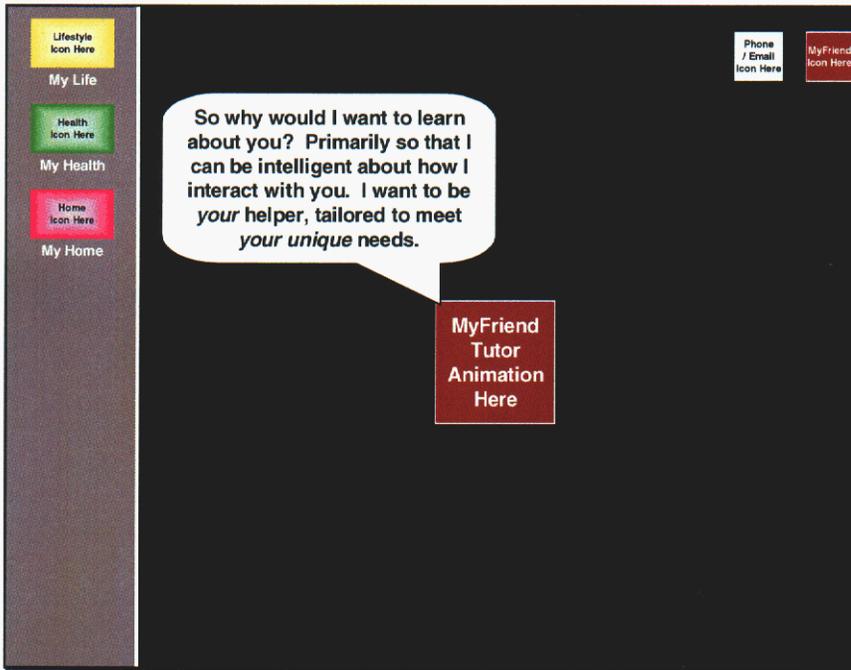
*Next it moves to explaining its capabilities.*

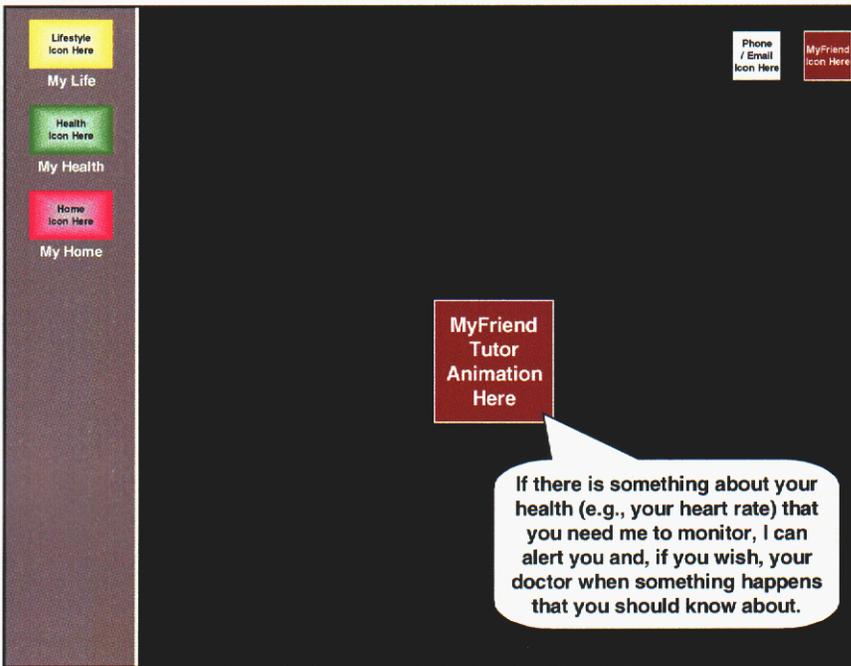
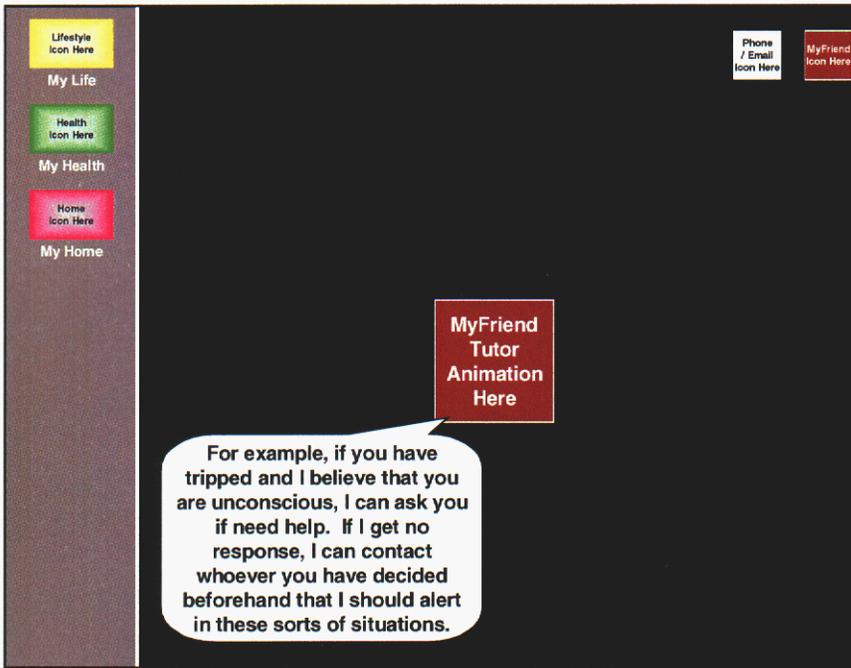


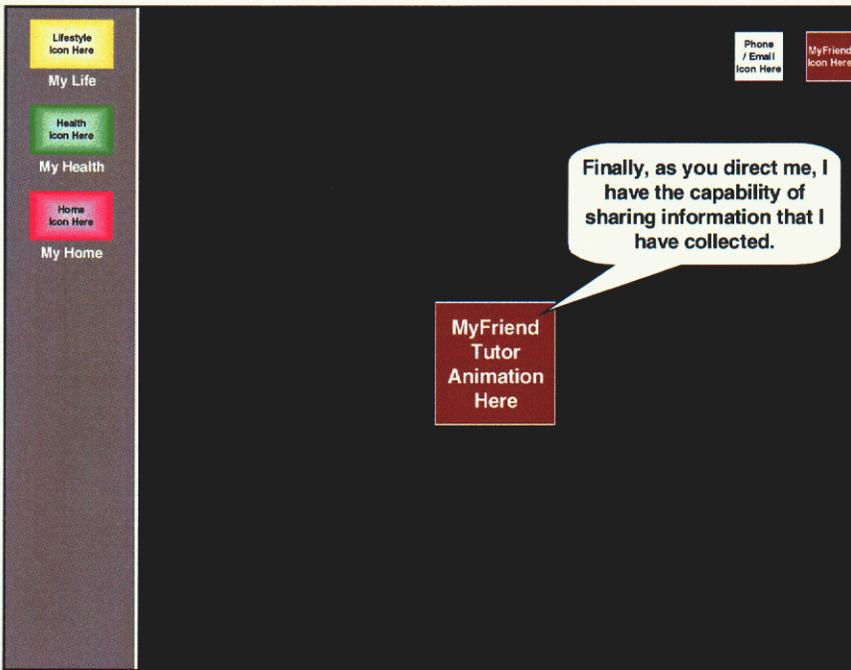
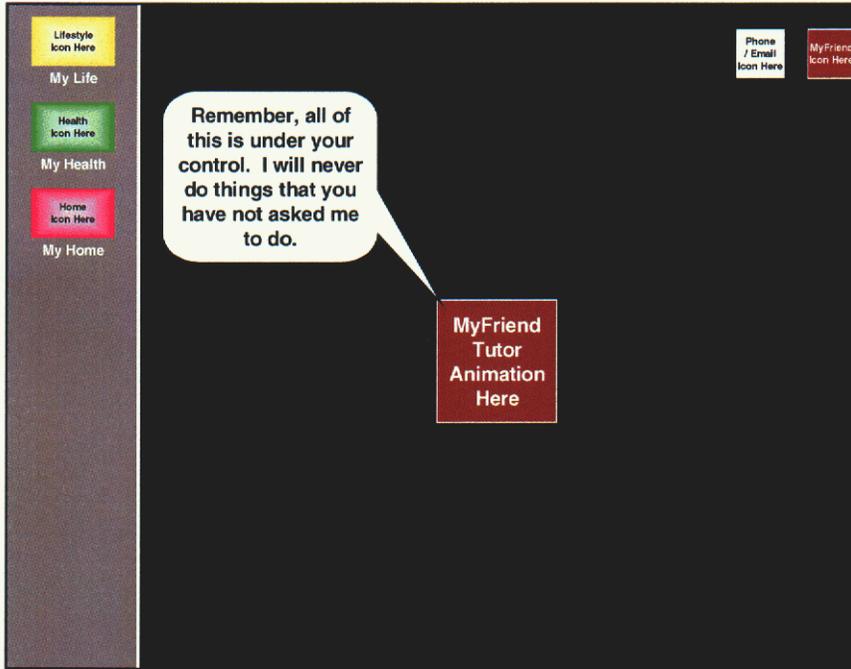


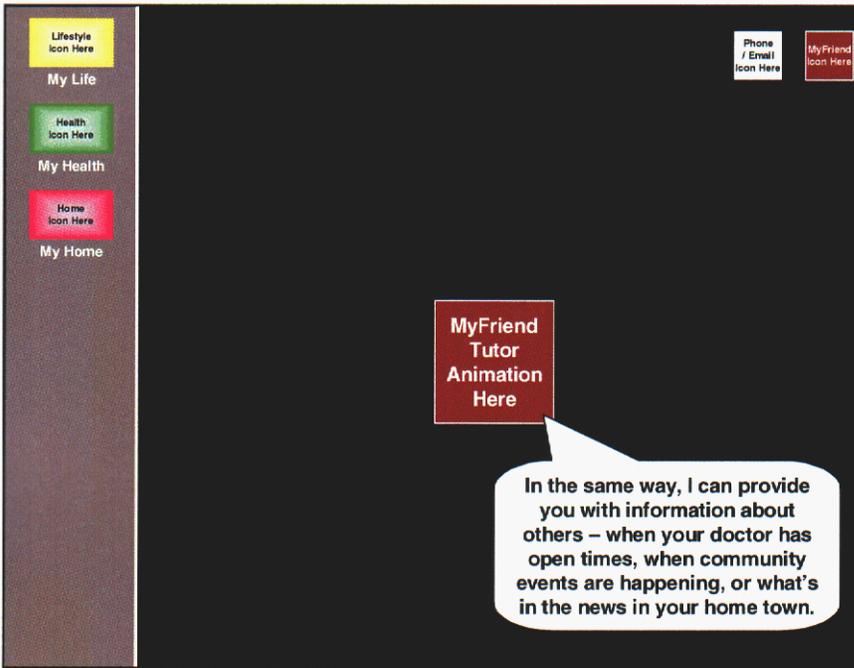
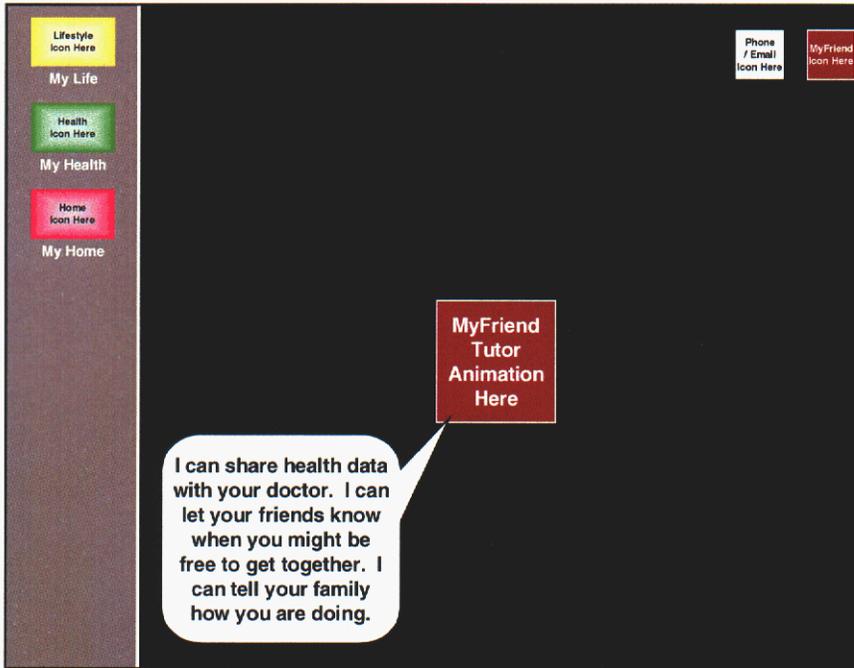
*MyFriend notes that, initially, it knows nothing about its users and will require a little time to get learn about them. Over time, as it learns more and more, it will become much more useful to these people.*

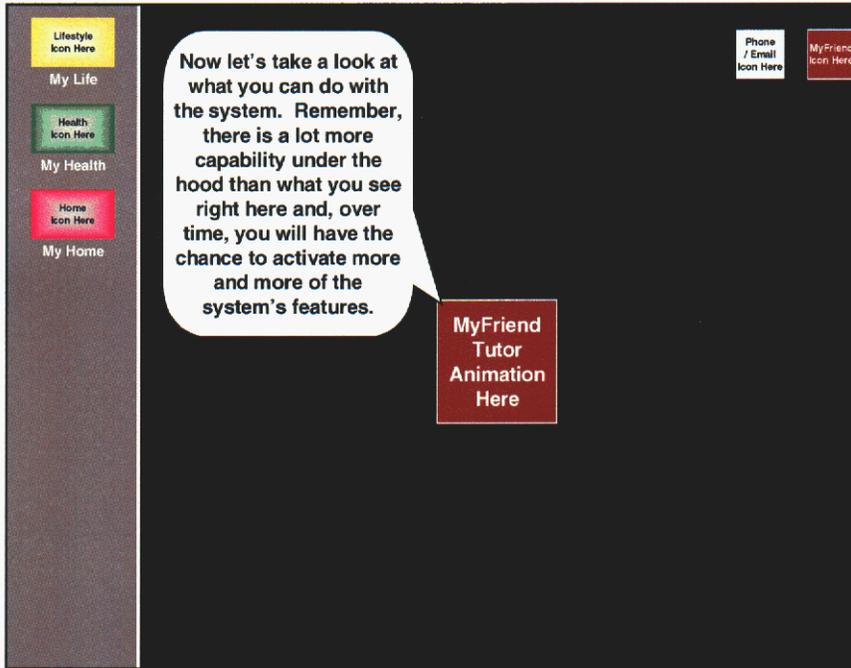




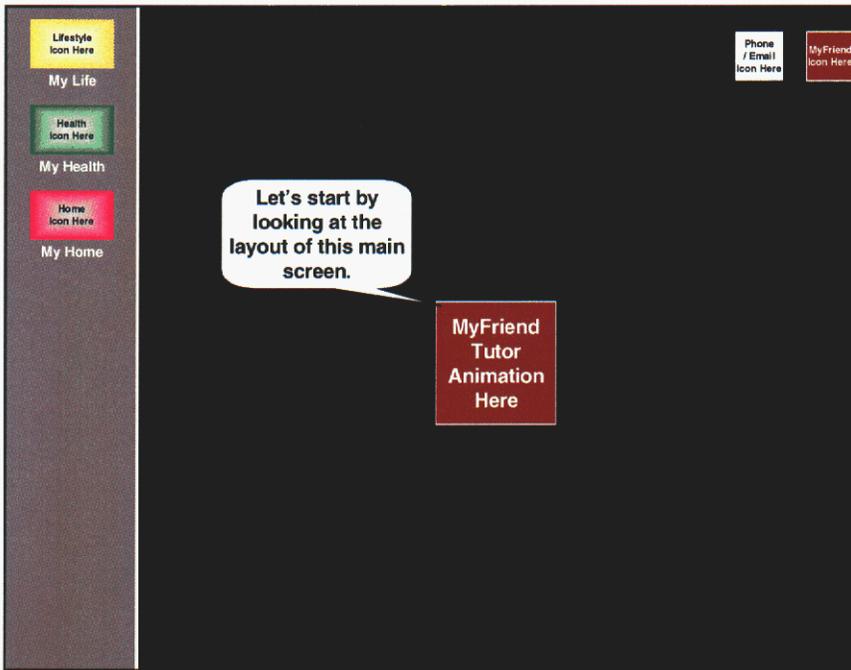


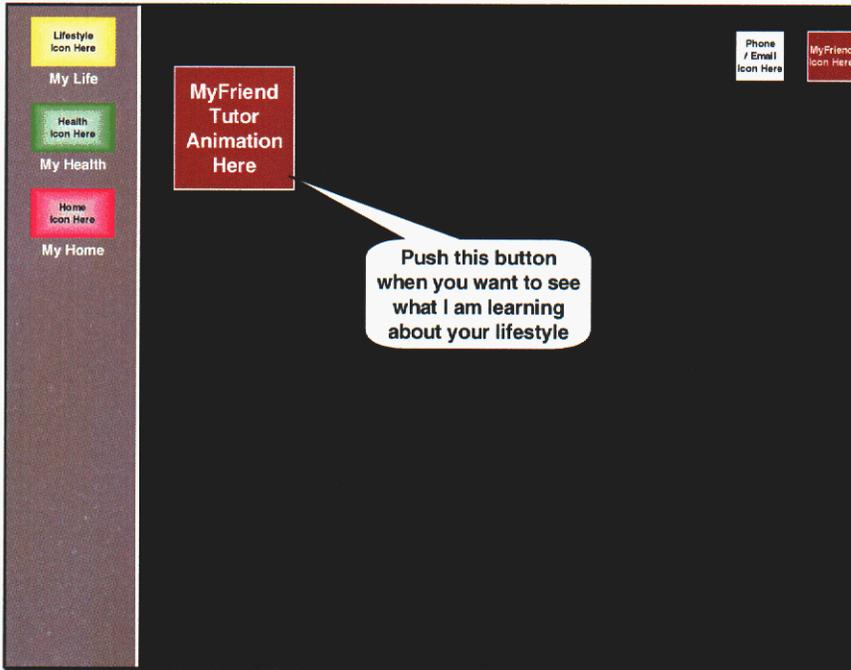






*Only the "core" functions will be shown right now.*

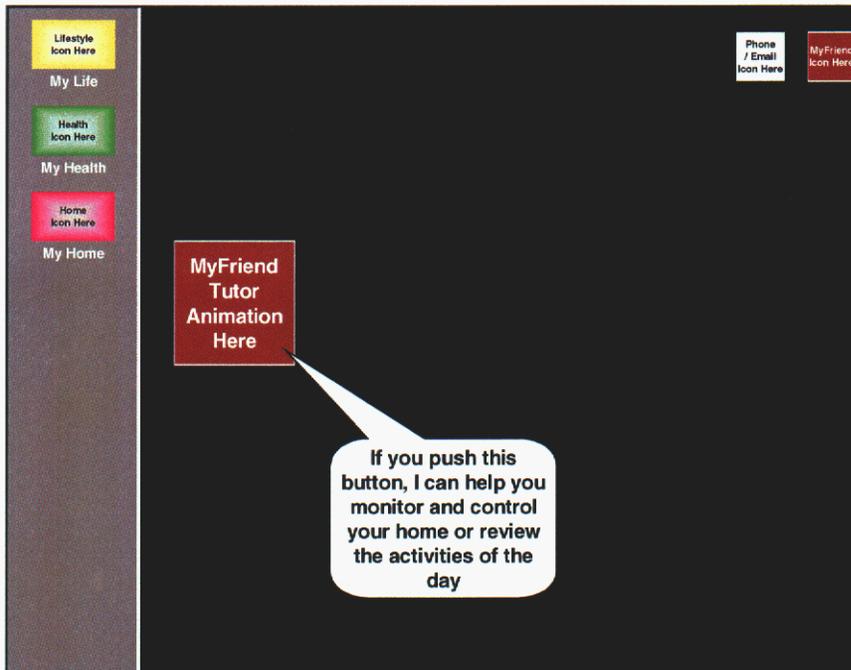




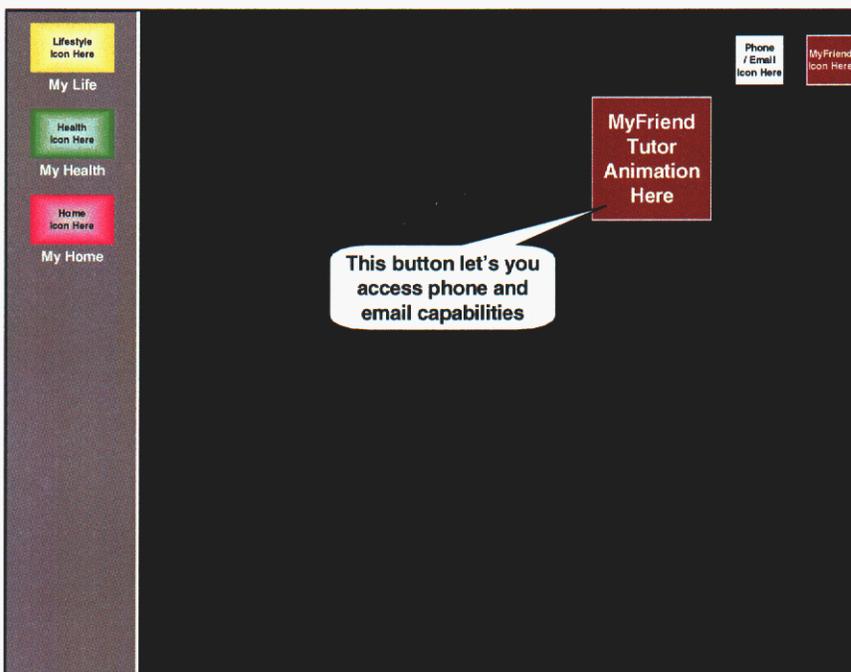
*The animated character points to the top icon at the left side of the screen.*



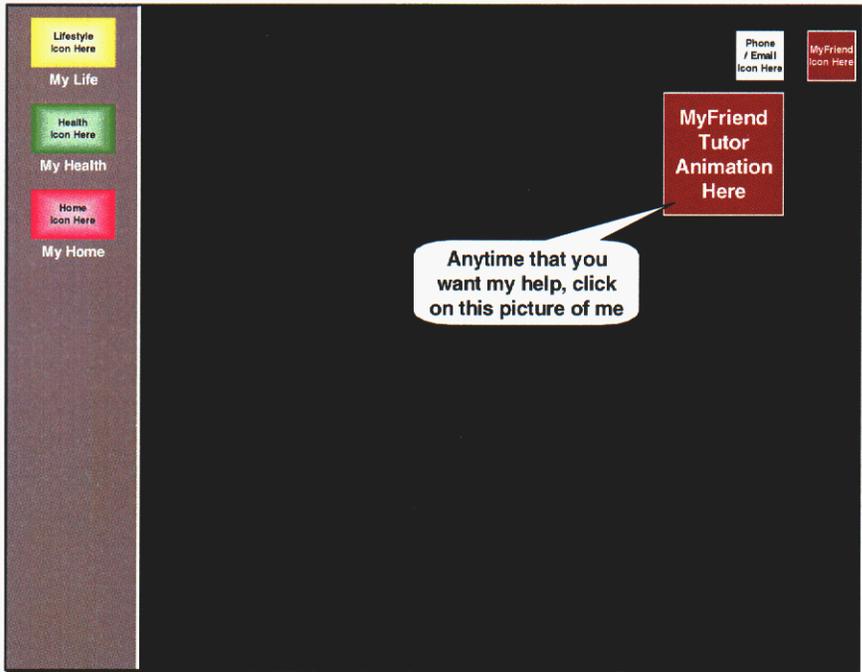
*And now to the middle icon on this menu bar.*



*The character now points to the bottom of the three buttons.*

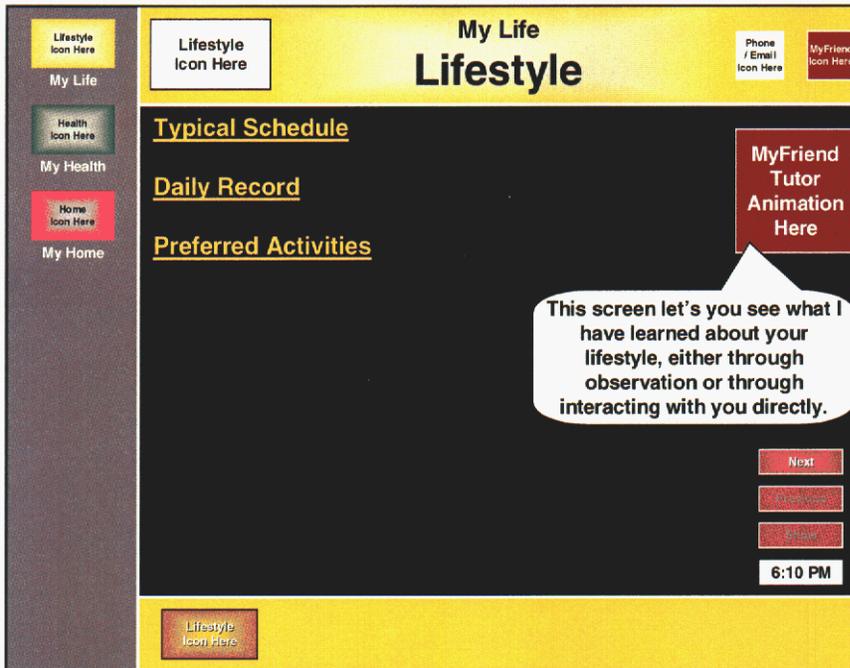


*The character points to the leftmost button at the top right corner of the screen.*

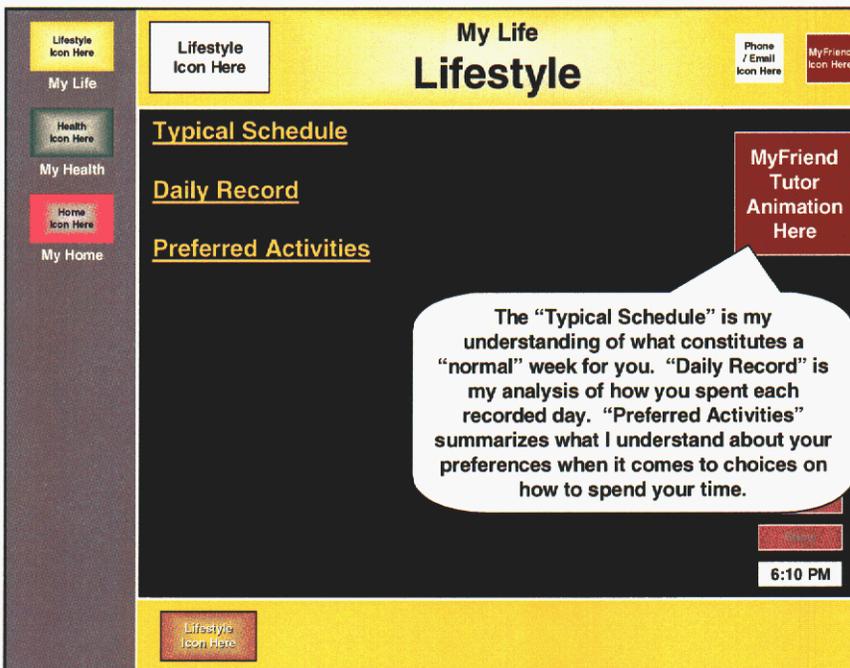


*And then to the icon in the upper right that looks like the animated character.*





*This is where a user would go to see what MyFriend believes it has learned about the user.*



My Life  
**Lifestyle**

Phone / Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

Phone / Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Home  
Icon Here

My Home

Today

Typical Schedule

Daily Record

Preferred Activities

MyFriend  
Tutor  
Animation  
Here

To view either, point to the underlined phrase with the trackball and click on the selected phrase or use the "Next" and "Previous" keys to select an option and the "Show" key to display it.

Previous

Show

6:10 PM

Lifestyle  
Icon Here

My Life  
**Typical Schedule**

Phone / Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

Phone / Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Home  
Icon Here

My Home

Typical Schedule

|        | Sun     | Mon      | Tue      | Wed     | Thu      | Fri      | Sat    |
|--------|---------|----------|----------|---------|----------|----------|--------|
| ∅      |         |          |          |         |          |          |        |
| 9:00A  | Van     | Cleaning |          | Laundry |          | Cleaning |        |
| 9:30A  | Church  | Cleaning |          | Laundry |          | Cleaning |        |
| 10:00A | Church  |          | Van      | Laundry | Van      |          |        |
| 10:30A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:00A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:30A | Lunch   | Lunch    | Day Care | Lunch   | Day Care | Lunch    | Garden |
| 12:00P | Lunch   |          | Day Care |         | Day Care |          | Garden |
| 12:30P | Lunch   |          | Day Care |         | Day Care |          | Lunch  |
| 1:00P  | Nap     | Van      | Day Care | Van     | Day Care | Van      |        |
| 1:30P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:00P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:30P  | Reading | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| ⊞      |         |          |          |         |          |          |        |

MyFriend  
Tutor  
Animation  
Here

This screen shows what I believe to be a typical week for you.

Next

Previous

Details

6:10 PM

Lifestyle  
Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

## My Life Typical Schedule

Phone / Email Icon Here

MyFriend Icon Here

### Typical Schedule

|        | Sun     | Mon      | Tue      | Wed     | Thu      | Fri      | Sat    |
|--------|---------|----------|----------|---------|----------|----------|--------|
| ∅      |         |          |          |         |          |          |        |
| 9:00A  | Van     | Cleaning |          | Laundry |          | Cleaning |        |
| 9:30A  | Church  | Cleaning |          | Laundry |          | Cleaning |        |
| 10:00A | Church  |          | Van      | Laundry | Van      |          |        |
| 10:30A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:00A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:30A | Lunch   | Lunch    | Day Care | Lunch   | Day Care | Lunch    | Garden |
| 12:00P | Lunch   |          | Day Care |         | Day Care |          | Garden |
| 12:30P | Lunch   |          | Day Care |         | Day Care |          | Lunch  |
| 1:00P  | Nap     | Van      | Day Care | Van     | Day Care | Van      |        |
| 1:30P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:00P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:30P  | Reading | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |

MyFriend Tutor Animation Here

While the activity shown in any given time slot is most likely not the only thing that you do at that time each week, it is probably the most common.

Next

Previous

Details

6:10 PM

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

## My Life Typical Schedule

Phone / Email Icon Here

MyFriend Icon Here

### Typical Schedule

|        | Sun     | Mon      | Tue      | Wed     | Thu      | Fri      | Sat    |
|--------|---------|----------|----------|---------|----------|----------|--------|
| ∅      |         |          |          |         |          |          |        |
| 9:00A  | Van     | Cleaning |          | Laundry |          | Cleaning |        |
| 9:30A  | Church  | Cleaning |          | Laundry |          | Cleaning |        |
| 10:00A | Church  |          | Van      | Laundry | Van      |          |        |
| 10:30A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:00A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:30A | Lunch   | Lunch    | Day Care | Lunch   | Day Care | Lunch    | Garden |
| 12:00P | Lunch   |          | Day Care |         | Day Care |          | Garden |
| 12:30P | Lunch   |          | Day Care |         | Day Care |          | Lunch  |
| 1:00P  | Nap     | Van      | Day Care | Van     | Day Care | Van      |        |
| 1:30P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:00P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:30P  | Reading | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |

MyFriend Tutor Animation Here

Where the schedule is blank, I have yet to draw a conclusion about a typical activity.

Next

Previous

Details

6:10 PM

**My Life Typical Schedule**

Phone / Email Icon Here MyFriend Icon Here

**Typical Schedule**

|        | Sun     | Mon      | Tue      | Wed     | Thu      | Fri      | Sat    |
|--------|---------|----------|----------|---------|----------|----------|--------|
| 9:00A  | Van     | Cleaning |          | Laundry |          | Cleaning |        |
| 9:30A  | Church  | Cleaning |          | Laundry |          | Cleaning |        |
| 10:00A | Church  |          | Van      | Laundry | Van      |          | Garden |
| 10:30A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:00A | Church  |          | Day Care |         | Day Care |          | Garden |
| 11:30A | Lunch   | Lunch    | Day Care | Lunch   | Day Care | Lunch    | Garden |
| 12:00P | Lunch   |          | Day Care |         | Day Care |          | Garden |
| 12:30P | Lunch   |          | Day Care |         | Day Care |          | Lunch  |
| 1:00P  | Nap     | Van      | Day Care | Van     | Day Care | Van      |        |
| 1:30P  | Nap     | Bridge   | Day Care | Bridge  | Day Care | Bridge   |        |
| 2:00P  | Nap     | Bridge   |          |         |          | Bridge   |        |
| 2:30P  | Reading | B        |          |         |          | Bridge   |        |

MyFriend Tutor Animation Here

If you would like to see how I arrived at any given conclusion, select the activity with the trackball and click on it or use the "Next" and "Previous" buttons to select an activity and the "Details" button to display the reasoning.

Next  
Previous  
Details  
6:10 PM

**My Life Typical Schedule**

Phone / Email Icon Here MyFriend Icon Here

**Typical Schedule**

Day  Time

| Observation          | Source  | Count |
|----------------------|---|-------|
| Work at Day Care     | Van Service Records<br>Church Employment Records<br>Self Reported "Normal" Activity | 317   |
| Medical Appointments | Medical Records   | 19    |

**Rules**

Observed consistent with self-reported "Normal"

**Conclusion**

**Confidence Level**

MyFriend Tutor Animation Here

This screen explains how I developed my conclusion about a given time slot.

6:11 PM

Here MyFriend shows that it monitors all available information sources about a person.

**My Life Typical Schedule**

**Typical Schedule**

Day  Time

| Observation          | Source  | Count |
|----------------------|---|-------|
| Work at Day Care     | Van Service Records<br>Church Employment Records<br>Self Reported "Normal" Activities |       |
| Medical Appointments | Medical Records   |       |

**Rules**  
Observed consistent with self-reported "Normal" Activities

**Conclusion**

**Confidence Level**

6:11 PM

**MyFriend Tutor Animation Here**

You can correct me by entering a new conclusion. In response, I may ask you some questions about what I have observed to date.

A user can help MyFriend's education process by directly editing this knowledge base.

**My Life Typical Schedule**

**Typical Schedule**

Day  Time

| Observation          | Source  | Count |
|----------------------|---|-------|
| Work at Day Care     | Van Service Records<br>Church Employment Records<br>Self Reported "Normal" Activities |       |
| Medical Appointments | Medical Records   |       |

**Rules**  
Observed consistent with self-reported "Normal" Activities

**Conclusion**

**Confidence Level**

6:11 PM

**MyFriend Tutor Animation Here**

To return to the schedule view, click once more on the "Typical Schedule" label at the top of the screen.

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

## My Life Daily Record

Phone / Email Icon Here

MyFriend Icon Here

∅

**9/26/02**

- **10:20P** Lights out
- **9:44P** In bed (reading?)
- **9:32P** Getting ready for bed
- **8:00P** TV (Diagnosis Murder, Fox News)
- **7:42P** Were you preparing a cup of tea?
- **6:20P** Were you walking? (more time than I expected)
- **6:03P** Eating dinner
- **5:30P** Preparing dinner
- **5:12P** Reading your mail?
- **4:46P** Visiting with Mrs. Stewart in the Game Room and picking up mail
- **4:15P** Van ride home from day care job

⌂

Lifestyle Icon Here

MyFriend Tutor Animation Here

This screen tells you how I interpreted your activities on a given day.

Next

Previous

Details

6:12 PM

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

## My Life Daily Record

Phone / Email Icon Here

MyFriend Icon Here

∅

**9/26/02**

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- **4:46P** Visiting with Mrs. Stewart in the Game Room and picking up mail
- **4:15P** Van ride home from day care job

⌂

Lifestyle Icon Here

MyFriend Tutor Animation Here

The items in the list are my best guess regarding what you were doing at a certain time of the day. The time listed next to each item is approximately when you started that activity.

Next

Previous

Details

6:12 PM

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

## My Life Daily Record

Phone / Email Icon Here

MyFriend Icon Here

∅

**9/26/02**

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than I expected)
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- **4:15P** Van ride home from day care job

⌂

MyFriend Tutor Animation Here

Next

Previous

Details

6:12 PM

You can hide or show all of the items for a given day by clicking on that day's date.

Lifestyle Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

## My Life Daily Record

Phone / Email Icon Here

MyFriend Icon Here

∅

**9/26/02**

- **10:20P** Lights out
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- **8:00P** TV (Diagnosis M...
- **7:42P** *Were you prep...*
- **6:20P** *Were you walk...*  
than I expecte...
- **6:03P** Eating dinner
- **5:30P** Preparing dinner
- **5:12P** *Reading your mail?*
- **4:46P** Visiting with Mrs. Stewart in the Game Room and picking up mail
- **4:15P** Van ride home from day care job

⌂

MyFriend Tutor Animation Here

Next

Previous

Details

6:12 PM

If you click on a time, I will show you the details that I used to arrive at my conclusion. You can also use the "Next" and "Previous" buttons to select a time and use the "Details" button to show the associated details.

Lifestyle Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

My Life

## Daily Record

Phone / Email Icon Here

MyFriend Icon Here

Ø

**9/26/02**

- **10:20P** Lights out
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- **9:32P** Getting ready for bed
- **8:00P** TV (Diagnosis Murder, For
- **7:42P** *Were you preparing a cu*
- **6:20P** *Were you walking? (more than I expected)*
- **6:03P** Eating dinner
- **5:30P** Preparing dinner
- **5:12P** *Reading your mail?*
- **4:46P** Visiting with Mrs. Stewart in the Game Room and picking up mail
- **4:15P** Van ride home from day care job

⌂

MyFriend Tutor Animation Here

Sometimes I will *know* that I am not sure what you are doing. I'll show you my uncertainty by listing the item as a question.

Next

Previous

Default

6:12 PM

Lifestyle Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

My Life

## Daily Record

Phone / Email Icon Here

MyFriend Icon Here

Ø

**9/26/02**

- **10:20P** Lights out
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- **6:03P** Eating dinner
- **5:30P** Preparing dinner
- **5:12P** *Reading your mail?*
- **4:46P** Visiting with Mrs. Stewart in the Game Room and picking up mail
- **4:15P** Van ride home from day care job

⌂

MyFriend Tutor Animation Here

You can help me learn by selecting these questions and answering some questions about what you were actually doing.

Next

Previous

Default

6:13 PM

Lifestyle Icon Here

My Life

# Daily Record

Phone / Email Icon Here

MyFriend Icon Here

Lifestyle Icon Here

My Life

---

Health Icon Here

My Health

---

Home Icon Here

My Home

Lifestyle Icon Here

9/26/02

- 10:20P Lights out
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- 7:42P Were you prep
- 6:20P Were you walk
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- 5:30P Preparing dinner
- 5:12P Reading your mail?
- 4:46P Visiting with Mrs. Stewart in the Game Room and picking up mail
- 4:15P Van ride home from day care job

MyFriend Tutor Animation Here

If I think that I am "certain" about what you were doing *but I am wrong*, you can let me know by selecting the item that is in error and telling me what you were really doing.

Next

Previous

6:13 PM

Lifestyle Icon Here

My Life

# Daily Record

Phone / Email Icon Here

MyFriend Icon Here

Lifestyle Icon Here

My Life

---

Health Icon Here

My Health

---

Home Icon Here

My Home

Lifestyle Icon Here

9/26/02

- 7:42P Were you preparing a cup of tea?

MyFriend Tutor Animation Here

**Events**

- 7:42P Kitchen: Motion Detected
- 7:42P Kitchen: Light 1 On
- 7:42P Kitchen: Sink Faucet On
- 7:42P Kitchen: Stove Burner 1 On
- 7:51P Kitchen: Stove Burner 1 Off

**Rules**

Activity in kitchen after *DINNERTIME*

Stove on; Sink on

Past matches: Preparing Tea; Preparing Cocoa

**Conclusion**

Preparing cup of tea

**Confidence Level** 53%

6:14 PM

Lifestyle Icon Here

This screen explains how I arrived at the conclusion shown at the top of the screen.

My Life

# Daily Record

Phone / Email Icon Here

MyFriend Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

9/26/02

• 7:42P *Were you preparing a cup of tea?*

MyFriend Tutor Animation Here

**Events**

|       |                             |
|-------|-----------------------------|
| 7:42P | Kitchen: Motion Detected    |
| 7:42P | Kitchen: Light 1 On         |
| 7:42P | Kitchen: Sink Faucet On     |
| 7:42P | Kitchen: Stove Burner 1 On  |
| 7:51P | Kitchen: Stove Burner 1 Off |

**Rules**

Activity in kitchen after *DINNERTIME*  
 Stove on; Sink on  
 Past matches: Preparing Tea; Preparing Cocoa

**Conclusion**

Preparing cup of tea

Confidence Level 53%

6:14 PM

Lifestyle Icon Here

You can correct me by entering a new conclusion. In response, I may ask you some questions about events detected during this period.

My Life

# Daily Record

Phone / Email Icon Here

MyFriend Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

9/26/02

• 7:42P *Were you preparing a cup of tea?*

MyFriend Tutor Animation Here

**Events**

|       |                             |
|-------|-----------------------------|
| 7:42P | Kitchen: Motion Detected    |
| 7:42P | Kitchen: Light 1 On         |
| 7:42P | Kitchen: Sink Faucet On     |
| 7:42P | Kitchen: Stove Burner 1 On  |
| 7:51P | Kitchen: Stove Burner 1 Off |

**Rules**

Activity in kitchen after *DINNERTIME*  
 Stove on; Sink on  
 Past matches: Preparing Tea; Preparing Cocoa

**Conclusion**

Preparing cup of tea

Confidence Level 53%

6:14 PM

Lifestyle Icon Here

To return to the list of the day's events, click once more on the time.

My Life

## Preferred Activities

Phone / Email Icon Here

MyFriend Icon Here

Lifestyle Icon Here

My Life

---

Health Icon Here

My Health

---

Home Icon Here

My Home

Lifestyle Icon Here

My Life

## Preferred Activities

Phone / Email Icon Here

MyFriend Icon Here

∅

**Relaxation**

**Reading**

|                    |                       |                  |
|--------------------|-----------------------|------------------|
| <i>Magazines</i>   | <i>AM: Mon, Fri</i>   | <i>PM: Sat</i>   |
| <i>Books</i>       | <i>Bedtime: Every</i> |                  |
| <i>News</i>        | <i>AM: Every</i>      | <i>PM: Every</i> |
| <i>Diagnosis M</i> | <i>PM: Every</i>      |                  |

**Eating**

**Cooking**

|                    |                         |  |
|--------------------|-------------------------|--|
| <i>Minimal</i>     | <i>Breakfast: Every</i> |  |
| <i>Minimal</i>     | <i>Lunch: Mon, Wed,</i> |  |
| <i>Dining Room</i> | <i>Dinner: Every</i>    |  |

**Eating Out**

|                   |                        |  |
|-------------------|------------------------|--|
| <i>Brown Bag</i>  | <i>Lunch: Tue, Thu</i> |  |
| <i>Restaurant</i> | <i>Lunch: Sun</i>      |  |

MyFriend Tutor Animation Here

This screen shows what I have learned about how you prefer to spend time.

Next

Previous

Back

6:14 PM

Lifestyle Icon Here

My Life

## Preferred Activities

Phone / Email Icon Here

MyFriend Icon Here

Lifestyle Icon Here

My Life

---

Health Icon Here

My Health

---

Home Icon Here

My Home

Lifestyle Icon Here

My Life

## Preferred Activities

Phone / Email Icon Here

MyFriend Icon Here

∅

**Relaxation**

**Reading**

|                    |                       |                  |
|--------------------|-----------------------|------------------|
| <i>Magazines</i>   | <i>AM: Mon, Fri</i>   | <i>PM: Sat</i>   |
| <i>Books</i>       | <i>Bedtime: Every</i> |                  |
| <i>News</i>        | <i>AM: Every</i>      | <i>PM: Every</i> |
| <i>Diagnosis M</i> | <i>PM: Every</i>      |                  |

**Eating**

**Cooking**

|                    |                         |  |
|--------------------|-------------------------|--|
| <i>Minimal</i>     | <i>Breakfast: Every</i> |  |
| <i>Minimal</i>     | <i>Lunch: Mon, Wed,</i> |  |
| <i>Dining Room</i> | <i>Dinner: Every</i>    |  |

**Eating Out**

|                   |                        |  |
|-------------------|------------------------|--|
| <i>Brown Bag</i>  | <i>Lunch: Tue, Thu</i> |  |
| <i>Restaurant</i> | <i>Lunch: Sun</i>      |  |

MyFriend Tutor Animation Here

The items in the list are a catalog of what I have seen you do and when.

Next

Previous

Back

6:14 PM

Lifestyle Icon Here

My Life

**Preferred Activities**

Phone / Email Icon Here

MyFriend Icon Here

∅

**Relaxation**

**Reading**

**TV**

**Eating**

**Cooking**

**Eating Out**

|  |   |
|--|---|
| <p><i>Magazines</i></p> <p><i>Books</i></p> <p><i>News</i></p> <p><i>Diagnosis M</i></p>                               | <p><i>AM: Mon, Fri</i></p> <p><i>PM: Sat</i></p> <p><i>Bedtime: Every</i></p> <p><i>AM: Every</i></p> <p><i>PM: Every</i></p>                 |
| <p><i>Minimal</i></p> <p><i>Minimal</i></p> <p><i>Dining Room</i></p> <p><i>Brown Bag</i></p> <p><i>Restaurant</i></p> | <p><i>Breakfast: Ev</i></p> <p><i>Lunch: Mon, Wed,</i></p> <p><i>Dinner: Every</i></p> <p><i>Lunch: Tue, Thu</i></p> <p><i>Lunch: Sun</i></p> |

MyFriend Tutor Animation Here

**Next**

**Previous**

**Details**

**6:14 PM**

Lifestyle Icon Here

You can hide or show all of the items for a given topic by clicking on that topic.

My Life

**Preferred Activities**

Phone / Email Icon Here

MyFriend Icon Here

∅

**Relaxation**

**Reading**

**TV**

**Eating**

**Cooking**

**Eating Out**

|  |   |
|--|---|
| <p><i>Magazines</i></p> <p><i>Books</i></p> <p><i>News</i></p> <p><i>Diagn</i></p>                                     | <p><i>AM: Mon, Fri</i></p> <p><i>PM: Sat</i></p> <p><i>Bedtime: Every</i></p>                                     |
| <p><i>Minimal</i></p> <p><i>Minimal</i></p> <p><i>Dining Room</i></p> <p><i>Brown Bag</i></p> <p><i>Restaurant</i></p> | <p><i>Lunch: Mon, Wed,</i></p> <p><i>Dinner: Every</i></p> <p><i>Lunch: Tue, Thu</i></p> <p><i>Lunch: Sun</i></p> |

MyFriend Tutor Animation Here

**Next**

**Previous**

**Details**

**6:14 PM**

Lifestyle Icon Here

If you click on a specific item (e.g. "Magazines"), I will show you my records on that topic. If you like, you can also use the "Next" and "Previous" buttons to select a time and use the "Details" button to show the associated details.

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Home  
Icon Here

My Home

Phone / Email  
Icon Here

MyFriend  
Icon Here

**My Life**

## Preferred Activities

Diagnosis Murder

∅

- 9/25/02 8:00P – 9:00P Television: Ch 8
- 9/24/02 8:00P – 9:00P Television: Ch 8
- 9/23/02 8:00P – 9:00P Television: Ch 8
- 9/22/02 8:00P – 9:00P Television: Ch 8
- 9/21/02 8:00P – 9:00P Television: Ch 8
- 9/20/02 8:00P – 9:00P Television: Ch 8
- 9/19/02 8:00P – 9:00P Television: Ch 8
- 9/18/02 8:00P – 9:00P Television: Ch 8
- 9/17/02 8:00P – 9:00P Television: Ch 8
- 9/16/02 8:00P – 9:00P Television: Ch 8
- 9/15/02 8:00P – 9:00P Television: Ch 8
- 9/14/02 8:00P – 9:00P Television: Ch 8

6:15 PM

Lifestyle  
Icon Here

MyFriend  
Tutor  
Animation  
Here

This screen provides the detailed logs for events cataloged under your "Preferred Activities"

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Home  
Icon Here

My Home

Phone / Email  
Icon Here

MyFriend  
Icon Here

**My Life**

## Preferred Activities

Diagnosis Murder

∅

- 9/25/02 8:00P – 9:00P Television: Ch 8
- 9/24/02 8:00P – 9:00P Television: Ch 8
- 9/23/02 8:00P – 9:00P Television: Ch 8
- 9/22/02 8:00P – 9:00P Television: Ch 8
- 9/21/02 8:00P – 9:00P Television: Ch 8
- 9/20/02 8:00P – 9:00P Television: Ch 8
- 9/19/02 8:00P – 9:00P Television: Ch 8
- 9/18/02 8:00P – 9:00P Television: Ch 8
- 9/17/02 8:00P – 9:00P Television: Ch 8
- 9/16/02 8:00P – 9:00P Television: Ch 8
- 9/15/02 8:00P – 9:00P Television: Ch 8
- 9/14/02 8:00P – 9:00P Television: Ch 8

6:15 PM

Lifestyle  
Icon Here

MyFriend  
Tutor  
Animation  
Here

To return to the summary of "Preferred Activities" click on the label of the selected activity.

**My Health Status**

Health Icon Here

Phone / Email Icon Here

MyFriend Icon Here

Overall Status *Poor*

Exercise *Poor*

Nutrition *Fair*

Rest *Fair*

Physiological *Fair*

Emotional *Excellent*

MyFriend Tutor Animation Here

This screen provides a summary of how I believe you are doing in terms of maintaining your health.

Health Status Icon Here

Caregivers Icon Here

Lifestyle Icon Here

My Life

Health Icon Here

My Health

Home Icon Here

My Home

**My Health Status**

Health Icon Here

Phone / Email Icon Here

MyFriend Icon Here

Overall Status *Poor*

Exercise *Poor*

Nutrition *Fair*

Rest *Fair*

Physiological *Fair*

Emotional *Fair*

You show this screen by pressing the "Health Status" button on the bottom of the screen

MyFriend Tutor Animation Here

Health Status Icon Here

Caregivers Icon Here

Lifestyle Icon Here

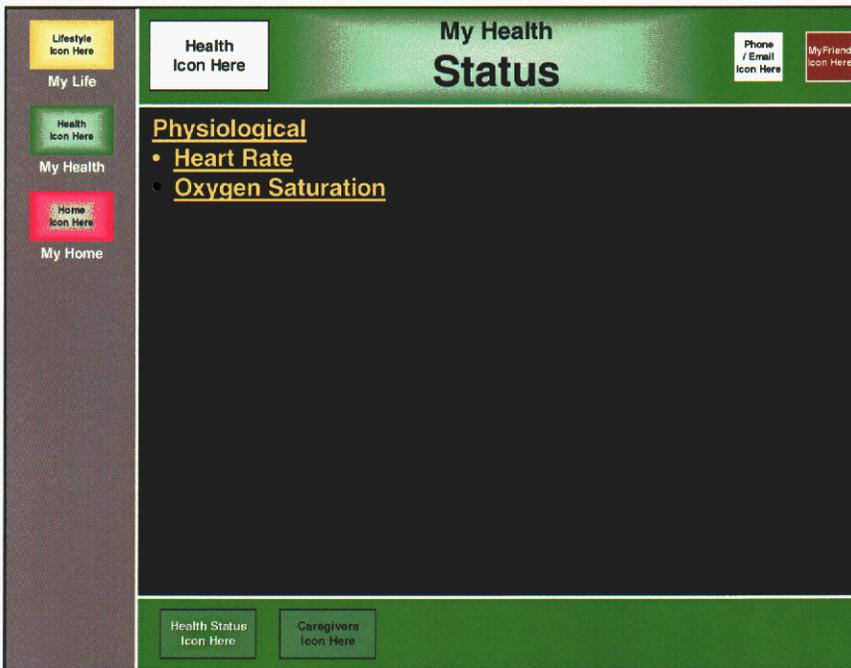
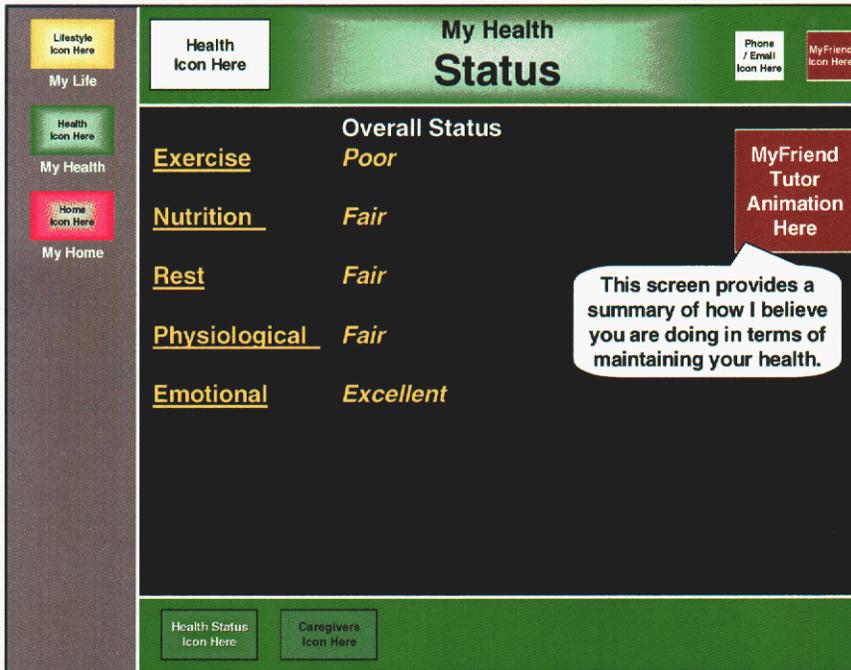
My Life

Health Icon Here

My Health

Home Icon Here

My Home



*This page would draw on instrumentation that the user wears as a matter of course (e.g., a pulse oximeter embedded in a wristwatch)*

Health  
Icon Here

## My Health Status

Phone  
/ Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Home  
Icon Here

My Home

**Physiological**

- **Heart Rate**

*Findings:*      1) Heart rate irregular

**Heart Rate**

|               | Typical | Max     | Min   |
|---------------|---------|---------|-------|
| Current:      | 125     |         |       |
| Average:      | 113     | 134     | 86    |
| High and Low: |         | 150     | 82    |
| Recovery :    | 7m 17s  | 12m 48s | 3m 7s |

Health Status  
Icon Here

Caregivers  
Icon Here

Health  
Icon Here

## My Health Caregivers

Phone  
/ Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Home  
Icon Here

My Home

*Dr. Middleton*    **Primary**    [middleton@cathmed.com](mailto:middleton@cathmed.com)  
555-465-2983

*Dr. Pike*            **Cardiac**        [mpike@cardassoc.com](mailto:mpike@cardassoc.com)  
555-872-1878

MyFriend  
Tutor  
Animation  
Here

This screen lists contact  
information for each of  
your caregivers.

Health Status  
Icon Here

Caregivers  
Icon Here

Health Icon Here

## My Health Caregivers

Phone / Email Icon Here
MyFriend Icon Here

**Dr. Middleton**    *Primary*    [middleton@cathmed.com](mailto:middleton@cathmed.com)  
555-465-2983

**Dr. Pike**        *Cardiac*     [mpike@cardassoc.com](mailto:mpike@cardassoc.com)  
555-872-1878

You show this screen by pressing the "Caregivers" button on the bottom of the screen

Health Status Icon Here
Caregivers Icon Here

MyLife Icon Here  
My Life
Health Icon Here  
My Health
Home Icon Here  
My Home

MyFriend Tutor Animation Here

Home Icon Here

## My Home

Phone / Email Icon Here
MyFriend Icon Here

**Living Room**

**Front Door**    *Closed / Unlocked*  
**Motion**        *Active / None*  
**Light 1**        *On*  
**Light 2**        *On / High*  
**TV**                *On / Ch. 12 / Vol. L*

**Kitchen**

**Back Door**    *Closed / Unlocked*  
**Motion**        *Active / Yes*  
**Light 1**        *On*  
**Stove**           *Burner 1 Off / Burner 2 On*  
**Oven**            *Off / 280 deg.*  
**Refrigerator** *Open / 41 deg. / 5% Humidity*

This screen let's you remotely check on the status of lights, doors, etc. in your home and to control their operation

Controls Icon Here
Summary Icon Here

MyLife Icon Here  
My Life
Health Icon Here  
My Health
Home Icon Here  
My Home

MyFriend Tutor Animation Here

Next  
Previous  
Refresh  
6:18 PM

Lifestyle  
Icon Here

Home  
Icon Here

My Home

Phone  
/ Email  
Icon Here

My Friend  
Icon Here

My Life

My Health

My Home

∅

**Living Room**

Front Door *Closed / Unlocked*

Motion *Active / None*

Light 1 *On*

Light 2 *On / High*

TV *On / Ch. 12 / Vol. Lev 5*

**Kitchen**

Back Door *Closed / Unlocked*

Motion *Active / None*

Light 1 *On*

Stove *Burner 1 Off / Burner 2 On*

Oven *Off / 280 deg.*

Refrigerator *Open / 41 deg. / 5% Humidity*

⊞

Next

Previous

Change

6:18 PM

Controls  
Icon Here

Summary  
Icon Here

You show this screen by pressing the "Controls" button on the bottom of the screen

MyFriend  
Tutor  
Animation  
Here

Lifestyle  
Icon Here

Home  
Icon Here

My Home

Phone  
/ Email  
Icon Here

My Friend  
Icon Here

My Life

My Health

My Home

∅

**Living Room**

Front Door *Closed / Unlocked*

Motion *Active / None*

Light 1 *On*

Light 2 *On / High*

TV *On / Ch. 12 / Vol. Lev 5*

**Kitchen**

Back Door *Closed / Unlocked*

Motion *Active / Yes*

Light 1 *On*

Stove *Burner 1 Off / Burner 2 On*

Oven *Off / 280 deg.*

Refrigerator *Open / 41 deg. / 5% Humidity*

⊞

Previous

Change

6:18 PM

Controls  
Icon Here

Summary  
Icon Here

The items that can be monitored and/or controlled are grouped by the rooms that they occupy. You can hide or reveal a room's contents by clicking on the name of the room.

MyFriend  
Tutor  
Animation  
Here

Home  
Icon Here

# My Home

Phone  
/ Email  
Icon Here

MyFriend  
Icon Here

∅

**Living Room**

Front Door *Closed / Unlocked*

Motion *Active / None*

Light 1 *On*

Light 2 *On / High*

TV *On / Ch. 12 / Vol. Lev 5*

MyFriend  
Tutor  
Animation  
Here

**Kitchen**

Back Door *Closed / Unlocked*

Motion *Active / Yes*

Light 1 *On*

Stove *Burner 1 Off / Burner 2 On*

Oven *Off / 280 deg.*

Refrigerator *Open / 41 deg. / 5% Humidity*

Next

Previous

Change

6:18 PM

Controls  
Icon Here

Summary  
Icon Here

To change the status of a controllable item (e.g., to remotely lock a door), click on that underlined item.

Home  
Icon Here

# My Home

Phone  
/ Email  
Icon Here

MyFriend  
Icon Here

∅

**Living Room**

Front Door *Closed / Active / None*

Light 1 *On*

Light 2 *On / High*

TV *On / Ch. 12 / Vol. Lev 5*

You can also use the "Next" and "Previous" buttons above the clock to step through these items. Clicking on the "Change" button changes the state of the item currently selected.

**Kitchen**

Back Door *Closed / Unlocked*

Motion *Active / Yes*

Light 1 *On*

Stove *Burner 1 Off / Burner 2 On*

Oven *Off / 280 deg.*

Refrigerator *Open / 41 deg. / 5% Humidity*

Next

Previous

Change

6:18 PM

Controls  
Icon Here

Summary  
Icon Here

You can also use the "Next" and "Previous" buttons above the clock to step through these items. Clicking on the "Change" button changes the state of the item currently selected.

**My Home**

Home Icon Here

Phone / Email Icon Here

MyFriend Icon Here

∅

**Entry / Exit**  
Front Door  
Garage Door

**Movement**  
Living Room  
Kitchen  
Bedroom  
Bathroom  
Garage

**Cooking**  
Stove  
Oven

⌂

MyFriend Tutor Animation Here

This screen shows what I have learned about what your house senses each day.

Next  
Previous  
Details

6:19 PM

Controls Icon Here

Summary Icon Here

**My Home** sidebar: Lifestyle Icon Here, My Life, Health Icon Here, My Health, Home Icon Here, My Home

**My Home**

Home Icon Here

Phone / Email Icon Here

MyFriend Icon Here

Living

Kitchen

Bath

Bed

Garage

MyFriend Tutor Animation Here

If you would like, later on we can work on adding a floorplan view to your system.

6:21 PM

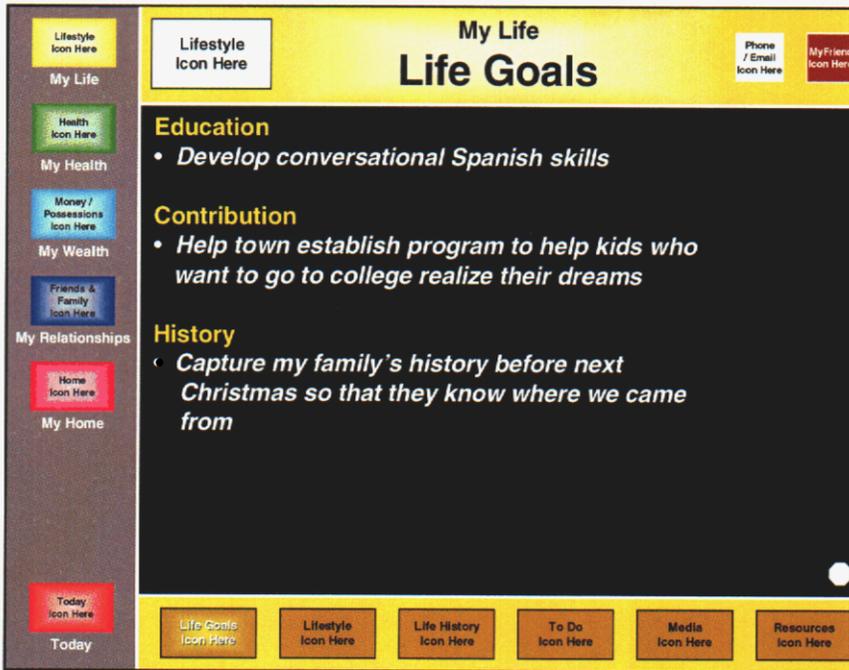
Controls Icon Here

Summary Icon Here

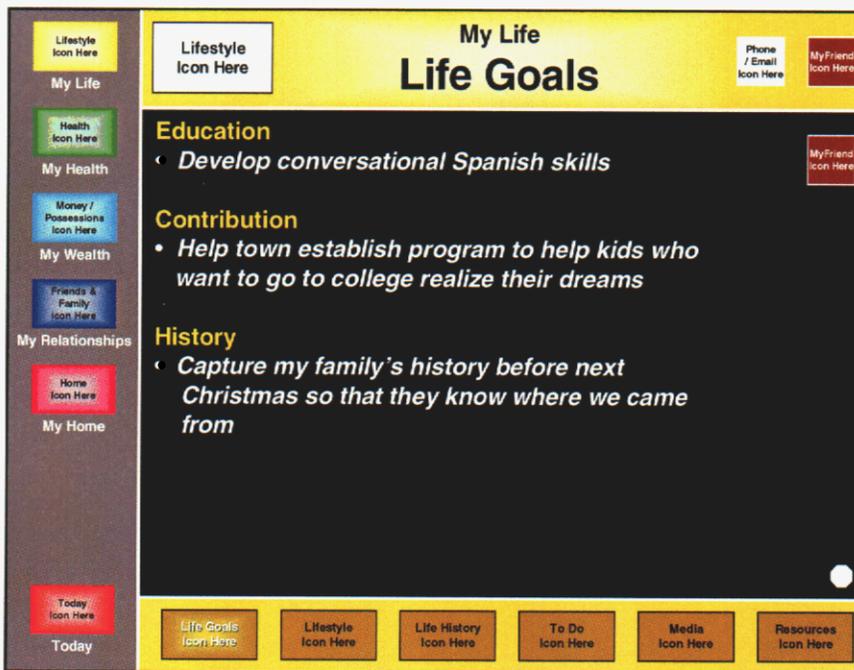
**My Home** sidebar: Lifestyle Icon Here, My Life, Health Icon Here, My Health, Home Icon Here, My Home



The remaining screens in this storyboard were meant to capture thoughts regarding the rest of MyFriend's screens. It includes appointments, things to do, emails and phone messages yet to be reviewed, and opportunities for service and social interaction discovered by MyFriend that match the user's interest profile.



*Here MyFriend would find out what broad goals the users wants to accomplish in life*



*This screen is meant to indicate that the user can work with MyFriend to extract the information to be stored in this part of MyFriend's knowledge base. Though not shown for the sake of simplicity, this sort of assistance is always available to the user, irrespective of the task being performed in MyFriend.*

**My Life**  
**Lifestyle**

Phone / Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Money / Possessions  
Icon Here

My Wealth

Friends & Family  
Icon Here

My Relationships

Home  
Icon Here

My Home

Today  
Icon Here

Today

Life Goals  
Icon Here

Lifestyle  
Icon Here

Life History  
Icon Here

To Do  
Icon Here

Media  
Icon Here

Resources  
Icon Here

**My Life**  
**Lifestyle: Schedule**

Phone / Email  
Icon Here

MyFriend  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Money / Possessions  
Icon Here

My Wealth

Friends & Family  
Icon Here

My Relationships

Home  
Icon Here

My Home

Today  
Icon Here

Today

Life Goals  
Icon Here

Lifestyle  
Icon Here

Life History  
Icon Here

To Do  
Icon Here

Media  
Icon Here

Resources  
Icon Here

Life Goals  
Icon Here

Lifestyle  
Icon Here

Life History  
Icon Here

To Do  
Icon Here

Media  
Icon Here

Resources  
Icon Here

Life Goals  
Icon Here

Lifestyle  
Icon Here

Life History  
Icon Here

To Do  
Icon Here

Media  
Icon Here

Resources  
Icon Here

Life Goals  
Icon Here

Lifestyle  
Icon Here

Life History  
Icon Here

To Do  
Icon Here

Media  
Icon Here

Resources  
Icon Here

**My Life Life History**

Places Lived

Education

Jobs

Relatives

Friends

Special Events

Memories

Life Goals Icon Here | Lifestyle Icon Here | Life History Icon Here | To Do Icon Here | Media Icon Here | Resources Icon Here

*This page is used to flesh out the person's profile with information that will be of use in finding other MyFriend users with whom relationships might be formed.*

**My Life To Do**

Schedule

To Do List

Shopping List

Life Goals Icon Here | Lifestyle Icon Here | Life History Icon Here | To Do Icon Here | Media Icon Here | Resources Icon Here

Lifestyle Icon Here  
My Life

Health Icon Here  
My Health

Money / Possessions Icon Here  
My Wealth

Friends & Family Icon Here  
My Relationships

Home Icon Here  
My Home

Today Icon Here  
Today

## My Life

# To Do: Schedule

Phone / Email Icon Here    MyFriend Icon Here

**Schedule**

|       | Sun    | Mon | Tue      | Wed      | Thu      | Fri | Sat    |
|-------|--------|-----|----------|----------|----------|-----|--------|
| ∅     |        |     |          |          |          |     |        |
| 9:45  | Church |     |          |          |          |     | at     |
| 10:00 | Church |     | Van      |          | Van      |     | Senior |
| 10:15 | Church |     | Van      | Van      | Van      |     | Center |
| 10:30 | Church |     | Work at  | Hair Cut | Work at  |     | Garden |
| 10:45 | Church |     | Day Care | Hair Cut | Day Care |     | Show   |
| 11:00 | Church |     | Work at  | Hair Cut | Work at  |     | Van    |
| 11:15 | Church |     | Day Care | Hair Cut | Day Care |     | Van    |
| 11:30 | Lunch  |     | Work at  | Hair Cut | Work at  |     |        |
| 11:45 | with   |     | Day Care | Van      | Day Care |     |        |
| 12:00 | Mae    |     | Work at  |          | Work at  |     |        |
| 12:15 | Lunch  |     | Day Care |          | Day Care |     |        |
| 12:30 | with   |     | Work at  |          | Work at  |     |        |
| ∅     |        |     |          |          |          |     |        |

Life Goals Icon Here

Lifestyle Icon Here

Life History Icon Here

To Do Icon Here

Media Icon Here

Resources Icon Here

Lifestyle Icon Here  
My Life

Health Icon Here  
My Health

Money / Possessions Icon Here  
My Wealth

Friends & Family Icon Here  
My Relationships

Home Icon Here  
My Home

Today Icon Here  
Today

## My Life

# Media

Phone / Email Icon Here    MyFriend Icon Here

TV

Radio

My Music

Newspaper

Magazines

Books

Life Goals Icon Here

Lifestyle Icon Here

Life History Icon Here

To Do Icon Here

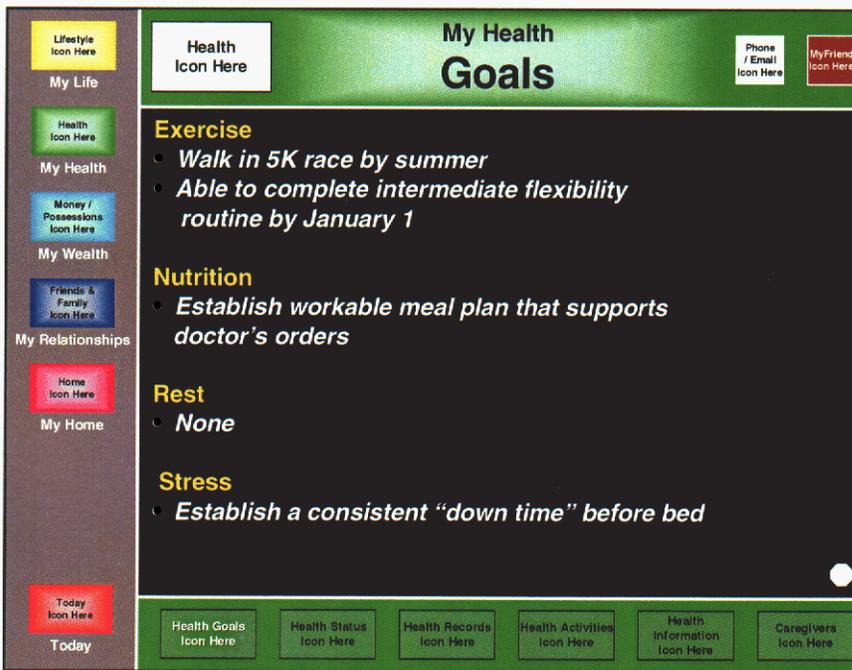
Media Icon Here

Resources Icon Here

*This section addresses what the user likes to read, watch, listen to, etc. While this might be edited directly by the user, it might also be developed by observing the person or by drawing on external sources (e.g., publisher databases)*



*These pages provide the person with rapid access to contact information for services that might be of most immediate use.*



*This is where the user would capture (maybe with collaboration from MyFriend and other key figures in the person's healthcare world), what is to be accomplished in the area of health.*

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Money / Possessions  
Icon Here

My Wealth

Friends & Family  
Icon Here

My Relationships

Home  
Icon Here

My Home

Today  
Icon Here

Today

Health  
Icon Here

## My Health

Phone / Email  
Icon Here
MyFriend  
Icon Here

# Status: Physiological

Exercise

Nutrition

Rest

Physiological

**Findings:**

**Heart Rate**

|               | Typical | Max     | Min   |
|---------------|---------|---------|-------|
| Current:      | 125     |         |       |
| Average:      | 113     | 134     | 86    |
| High and Low: |         | 150     | 82    |
| Recovery :    | 7m 17s  | 12m 48s | 3m 7s |

**Overall Status**

*Poor*

*Fair*

*Fair*

*Fair*

1) Heart rate irregular

Health Goals  
Icon Here
Health Status  
Icon Here
Health Records  
Icon Here
Health Activities  
Icon Here
Health Information  
Icon Here
Caregivers  
Icon Here

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Money / Possessions  
Icon Here

My Wealth

Friends & Family  
Icon Here

My Relationships

Home  
Icon Here

My Home

Today  
Icon Here

Today

Health  
Icon Here

## My Health

Phone / Email  
Icon Here
MyFriend  
Icon Here

# Records

*St. Mary's*

*Midtown General*

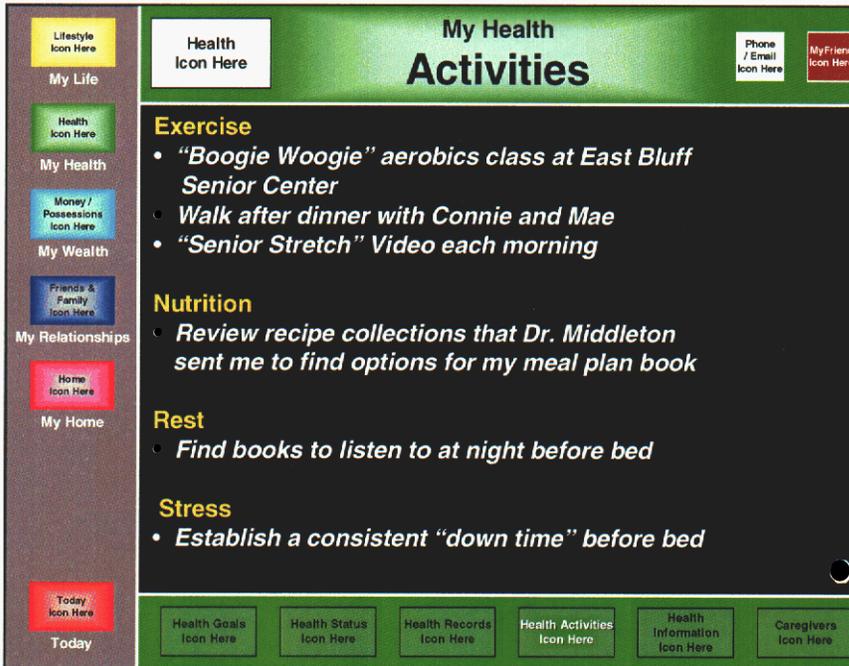
*Dr. Middleton*

*Dr. Pike*

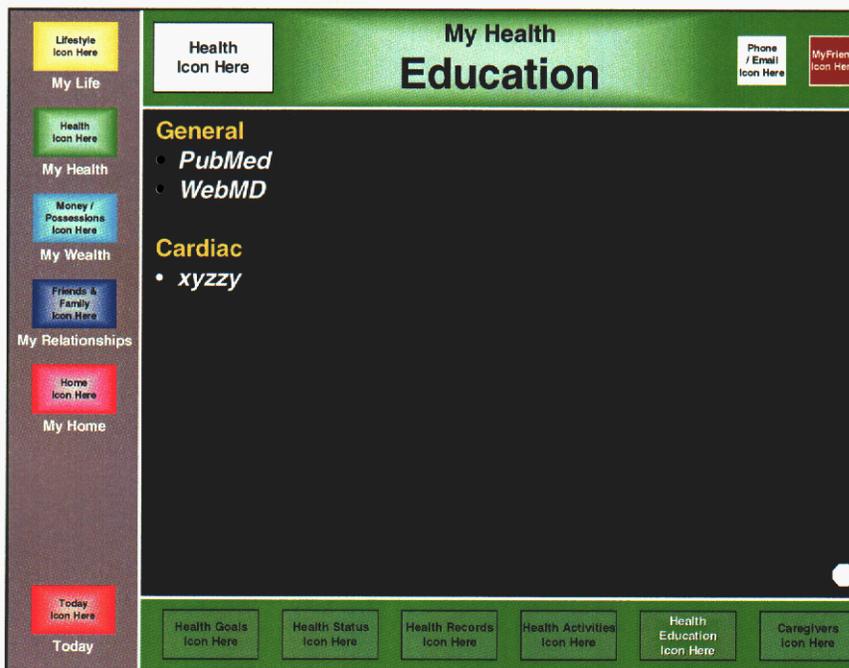
*The Xray Group*

Health Goals  
Icon Here
Health Status  
Icon Here
Health Records  
Icon Here
Health Activities  
Icon Here
Health Information  
Icon Here
Caregivers  
Icon Here

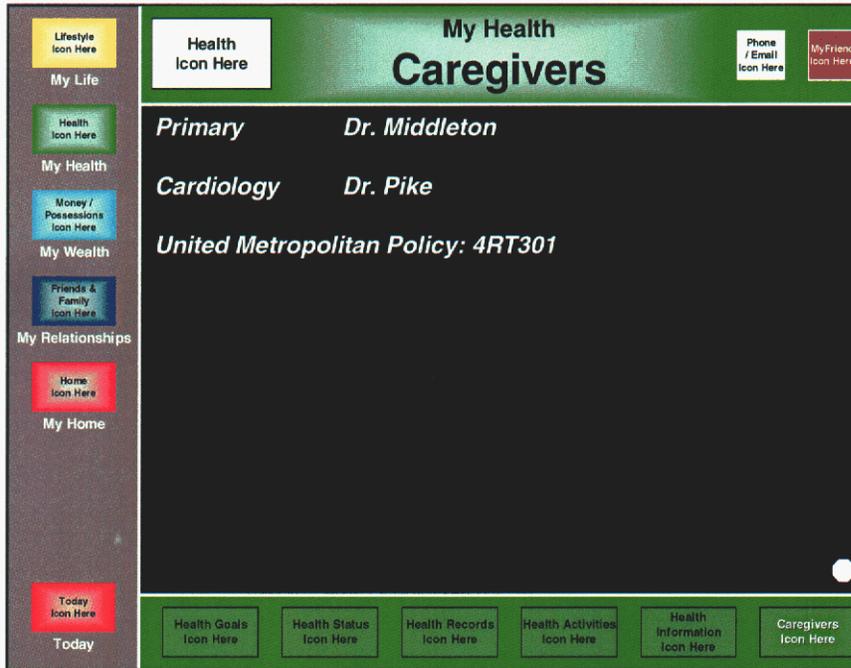
*This page gives the person access to all of their on-line health records. As needed, MyFriend can help interpret records and can analyze data drawn from multiple records.*



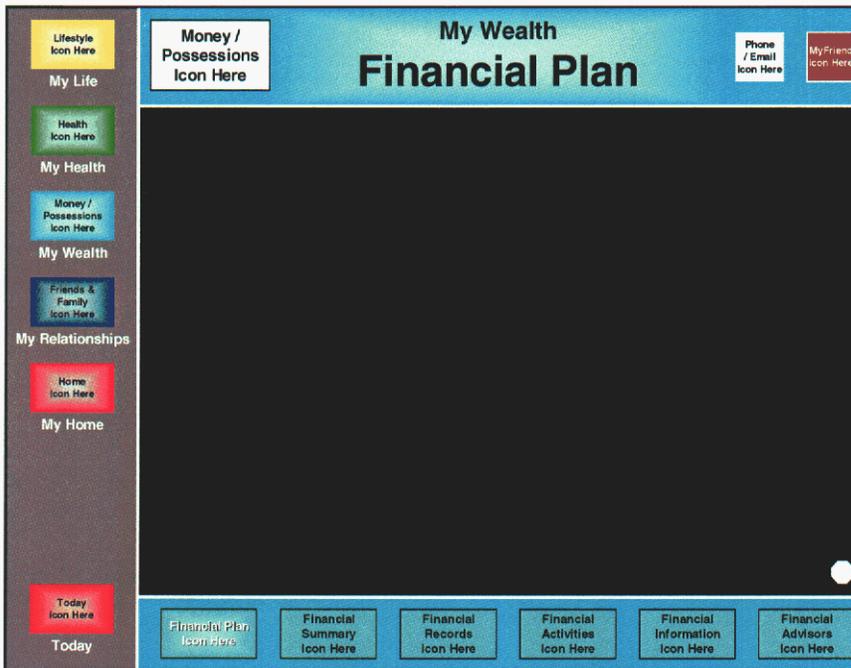
*This screen records the person's various activities that somehow relate to their health.*



*This screen allows a user to access health-related educational resources. What is presented is a customized combination of what the user prefers and applies to the user's unique health situation.*



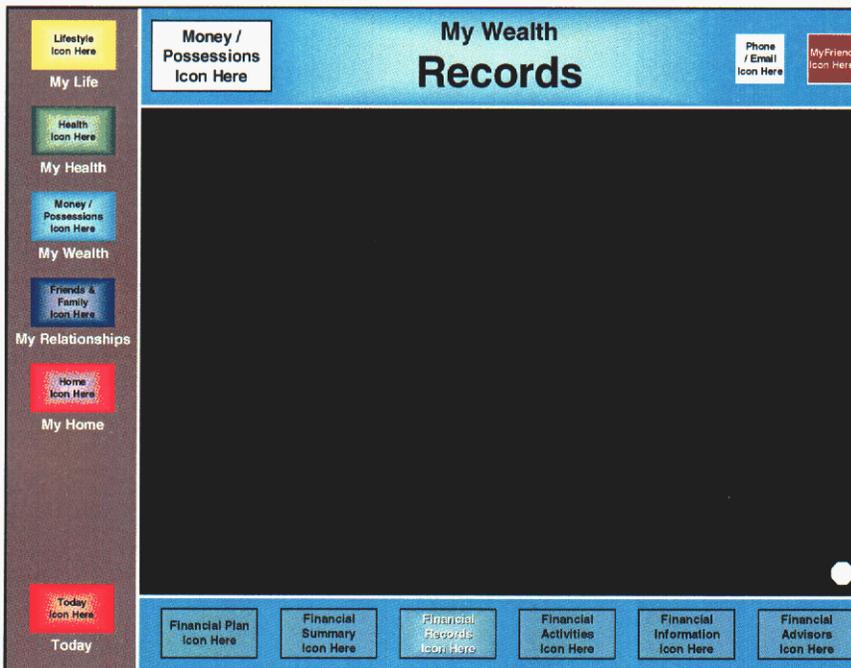
*This page catalogs other health-related information about the user.*



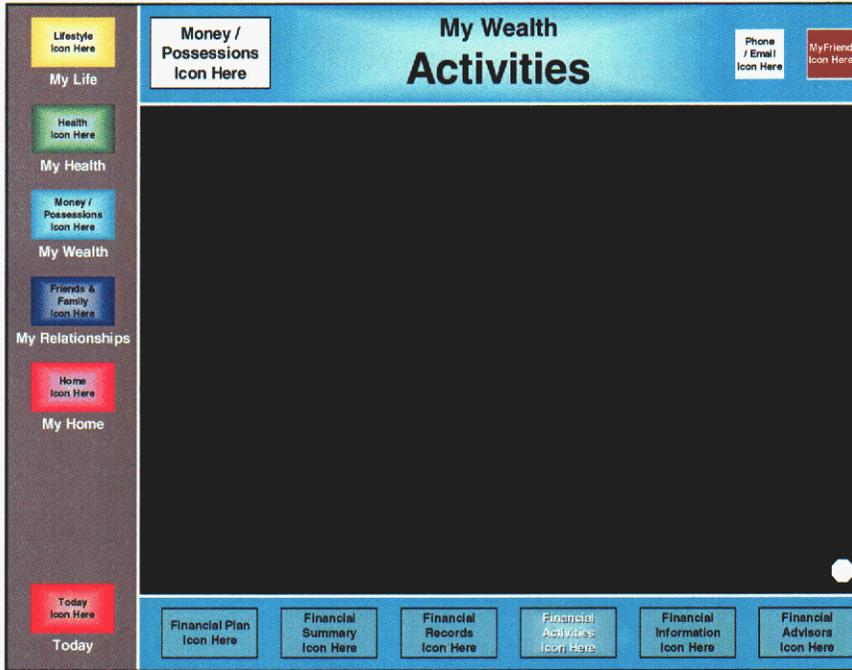
*This part of MyFriend allows the user to establish long-term financial goals*



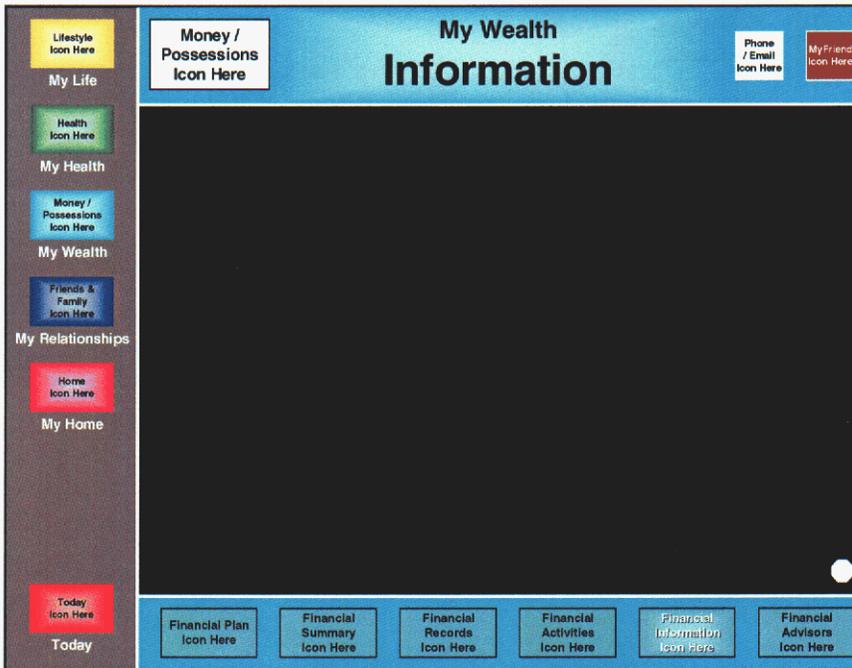
*This page would provide an assessment of how MyFriend thought the person was doing financially.*



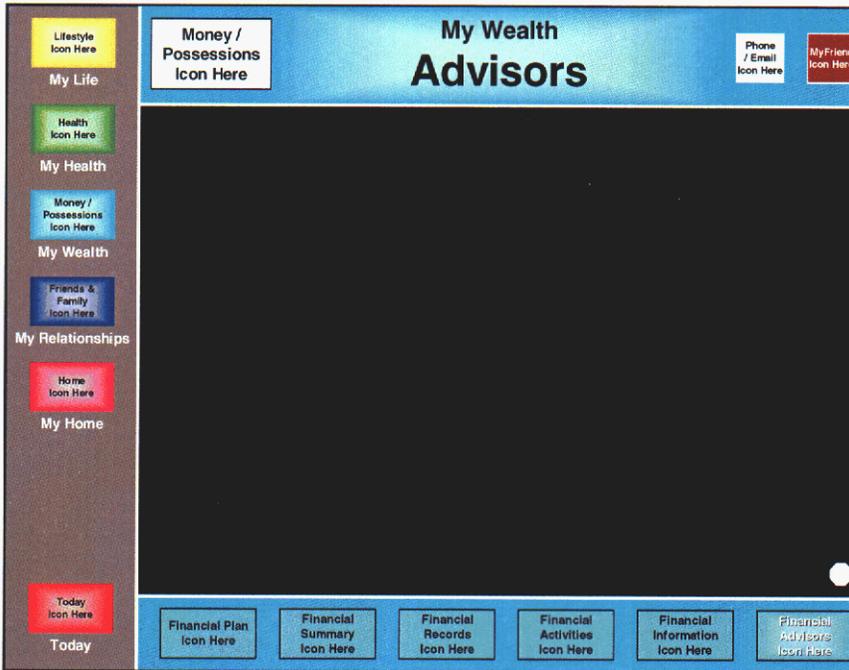
*This page would link to bank accounts, investments, insurance, loans, etc. to give the person access to roll-up and detail financial status.*



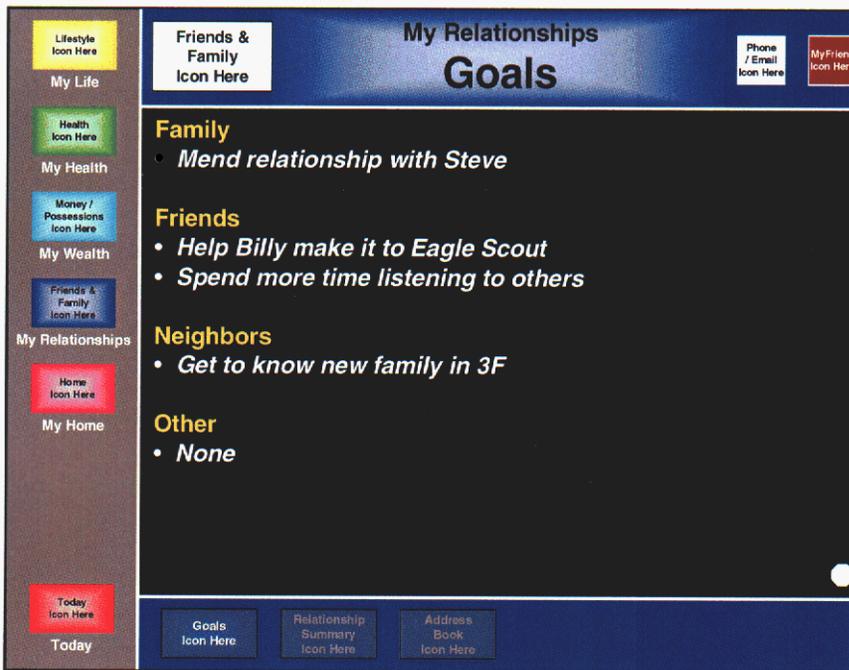
*This page would allow the person to see all of their activities that impacted on finances.*



*This page would provide access to a range of information / education sources in a way that is tailored to the person's own financial needs.*



*This page would list contact information for each of the people involved in the person's financial life.*



*This page would allow the person to establish goals for their relationships.*

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Money / Possessions  
Icon Here

My Wealth

Friends & Family  
Icon Here

My Relationships

Home  
Icon Here

My Home

Today  
Icon Here

Today

Friends & Family  
Icon Here

## My Relationships Summary

Phone / Email  
Icon Here

MyFriend  
Icon Here

|                  |                                 |
|------------------|---------------------------------|
| <b>Friends</b>   | Level of Contact<br><i>High</i> |
| <b>Family</b>    | <i>Low</i>                      |
| <b>Neighbors</b> | <i>Average</i>                  |
| <b>Other</b>     | <i>High</i>                     |

Goals  
Icon Here

Relationship  
Summary  
Icon Here

Address  
Book  
Icon Here

Phone / Email  
Icon Here

MyFriend  
Icon Here

*This page provides MyFriend's assessment of how the person is doing in terms of level of interaction with other people.*

Lifestyle  
Icon Here

My Life

Health  
Icon Here

My Health

Money / Possessions  
Icon Here

My Wealth

Friends & Family  
Icon Here

My Relationships

Home  
Icon Here

My Home

Today  
Icon Here

Today

Friends & Family  
Icon Here

## My Relationships Address Book

Phone / Email  
Icon Here

MyFriend  
Icon Here

|                     |  |
|---------------------|--|
| <b>Jim Castro</b>   | <a href="mailto:castro438@aol.com">castro438@aol.com</a><br>555-465-2983     |
| <b>Annie Katz</b>   | no email<br>555-818-9460   |
| <b>Billy Luna</b>   | <a href="mailto:pikachu@catnet.com">pikachu@catnet.com</a><br>555-499-0227   |
| <b>Helen Naylor</b> | <a href="mailto:naylor@idahonet.com">naylor@idahonet.com</a><br>555-332-6555 |
| <b>Steve Naylor</b> | <a href="mailto:snaylor@riptide.com">snaylor@riptide.com</a><br>555-395-0261 |

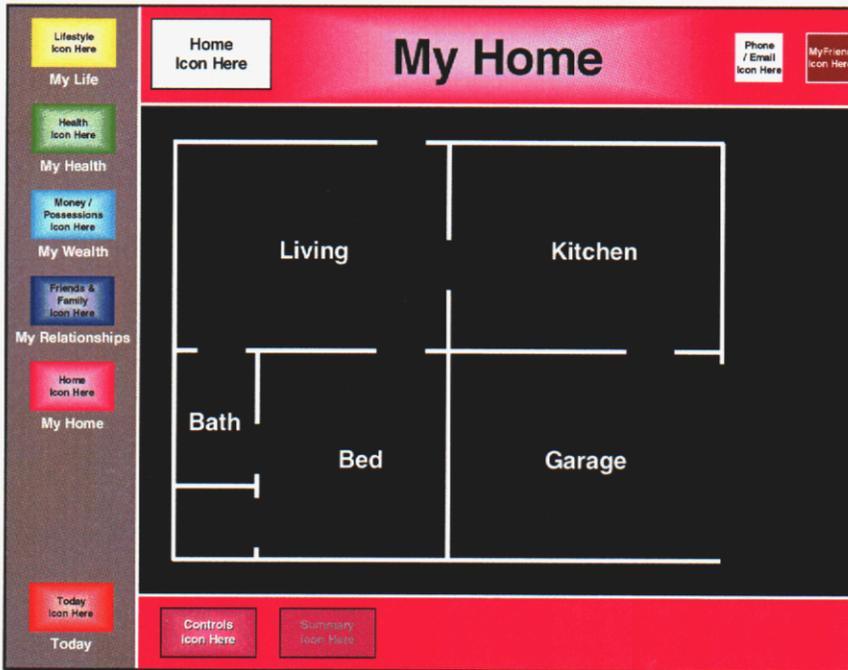
Goals  
Icon Here

Relationship  
Summary  
Icon Here

Address  
Book  
Icon Here

Phone / Email  
Icon Here

MyFriend  
Icon Here



*This page shows the current state of the user's home and also allows the person to set alarm levels and remotely control some subsystems.*



*This page provides a history of activity in the home over the last 24 hours.*

## MyFriend's Advice

Lifestyle  
Icon Here

My Life

---

Health  
Icon Here

My Health

---

Money / Possessions  
Icon Here

My Wealth

---

Friends & Family  
Icon Here

My Relationships

---

Home  
Icon Here

My Home

---

Today  
Icon Here

Today

**Health**

- 11/24/02 Check with doctor regarding irregular heart beat.
- 11/24/02 You have not rested well since Tuesday. You might want to slow down for the next few days.

**Lifestyle**

- 11/22/02 You seem tired and it appears that your schedule for the next few days may be overly full.

**Relationships**

- 11/21/02 Tom seems to be down today. Why don't you call him?

**Wealth**

- 11/24/02 Your CDs will mature next week. I recommend reinvesting them in ...

Advice  
Icon Here

Instructions  
Icon Here

Behavior  
Icon Here

Permissions  
Icon Here

Status  
Icon Here

History  
Icon Here

*This page is where MyFriend offers suggestions to its person regarding various aspects of that person's life.*

## MyFriend's Instructions

Lifestyle  
Icon Here

My Life

---

Health  
Icon Here

My Health

---

Money / Possessions  
Icon Here

My Wealth

---

Friends & Family  
Icon Here

My Relationships

---

Home  
Icon Here

My Home

---

Today  
Icon Here

Today

| Event                               | Action                    |
|-------------------------------------|---------------------------|
| Panic Button Pressed                | Call 911<br>Call Jim      |
| Heart Rate Very Low or High         | Call Doctor Middleton     |
| Fall and no movement for 60 seconds | Call 911<br>Email Michael |

Advice  
Icon Here

Instructions  
Icon Here

Behavior  
Icon Here

Permissions  
Icon Here

Status  
Icon Here

History  
Icon Here

*This page is where the user (or those carrying for the person) establishes those "alarm" conditions that MyFriend is to watch for and what to do when these conditions exist.*

**MyFriend's Behavior**

**Expose New MyFriend Capabilities**  
 | All at once / Gradually | Not at all

**Personality**  
 / Fun-loving | Easy-going | Serious | Pushy

**Talkativeness**  
 High  Moderately High  Moderately Low  Low

**Active MyFriend Modules**

| Life   | Health   | Wealth                                       | Relationships                                    | Home                              |
|--|--|--|--|-----------------------------------|
| <input checked="" type="checkbox"/> Rest     | <input checked="" type="checkbox"/> HR               | <input checked="" type="checkbox"/> Checking | <input checked="" type="checkbox"/> Address Book | <input type="checkbox"/> Activity |
| <input checked="" type="checkbox"/> Schedule | <input checked="" type="checkbox"/> SpO <sub>2</sub> | <input checked="" type="checkbox"/> Credit   | <input type="checkbox"/> Call Logs               | <input type="checkbox"/> Controls |
| <input type="checkbox"/> History             | <input type="checkbox"/> Nutrition                   | <input type="checkbox"/> Possessions         |  |                                   |
| <input type="checkbox"/> Today               | <input checked="" type="checkbox"/> Summary          |  |  |                                   |

**Start Up Module**  
 Health Summary

Navigation: Advice, Instructions, Behavior, Permissions, Status, History

*This page is used to customize what MyFriend shows and how the kind of personality that the animated character is to present.*

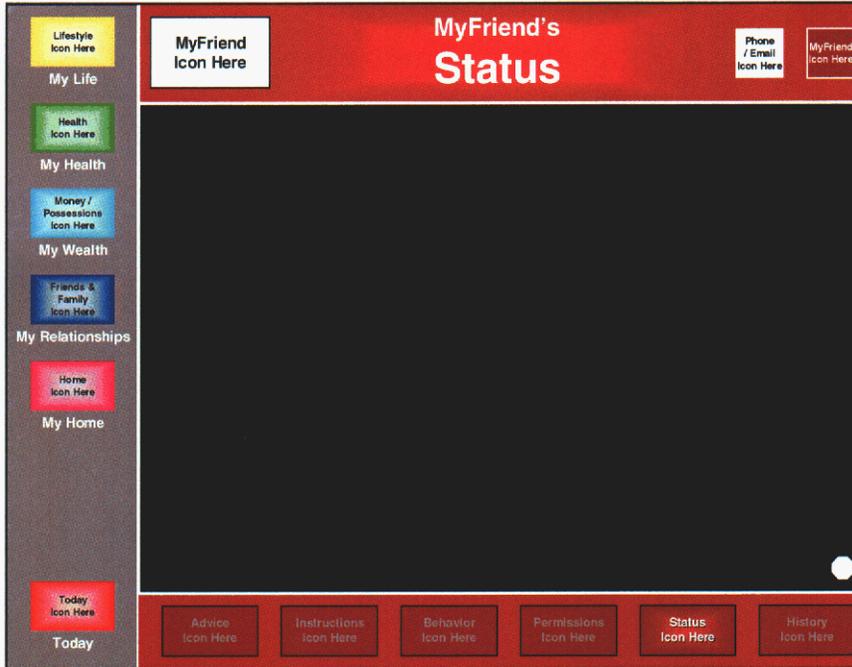
**MyFriend's Permissions**

**Access Permissions**

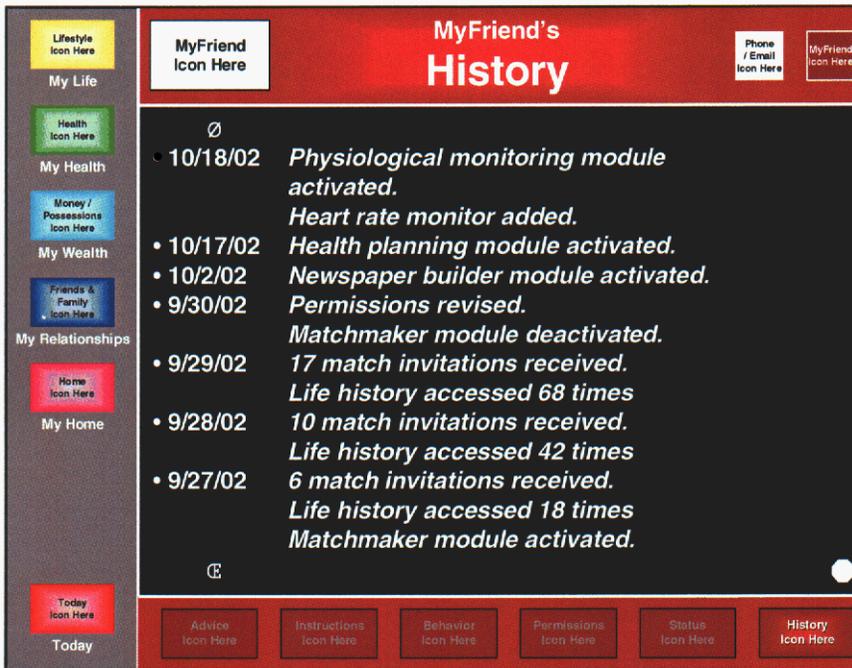
| Rest     | Caregivers   | Read    |
|----------|--------------|---------|
|          | Helen Naylor | Read    |
| Schedule |              | Private |

Navigation: Advice, Instructions, Behavior, Permissions, Status, History

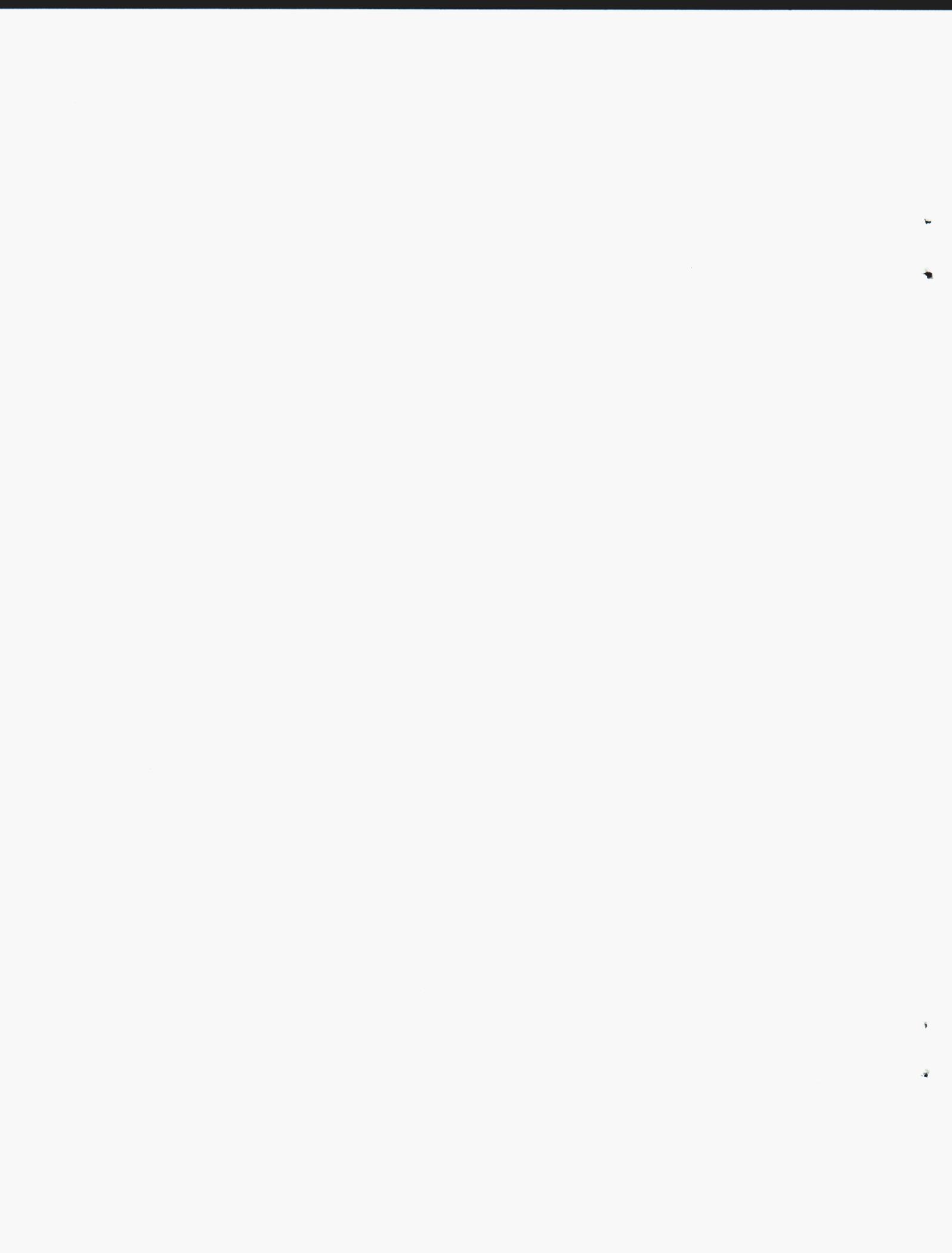
*This page specifies who is authorized to view or change information stored in MyFriend and who is allowed access to each of its services.*



*This page provides a summary of how MyFriend thinks it is doing and what MyFriend has on its own agenda for interacting with its person and their world.*

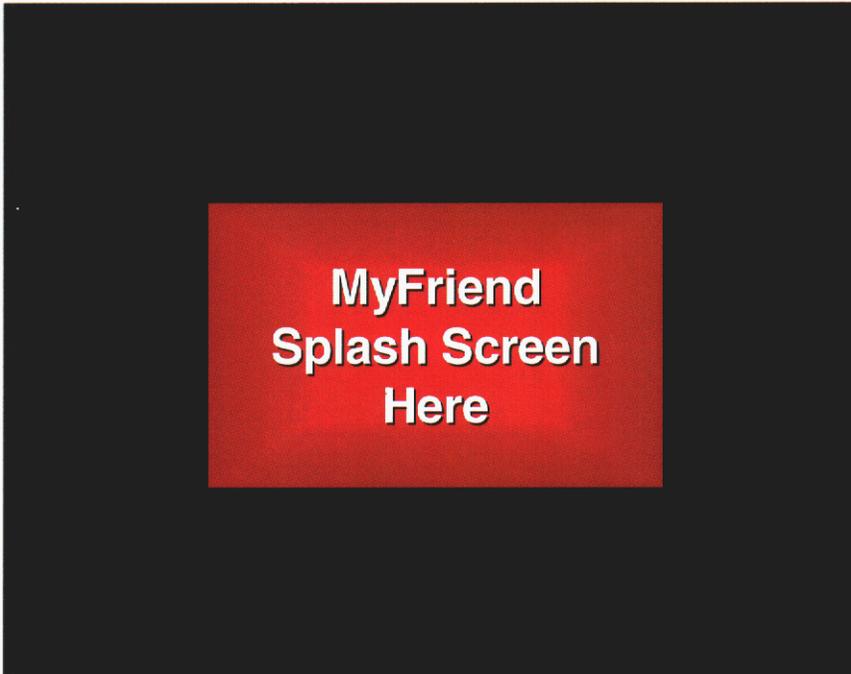


*This page summarizes all of the major events in MyFriend's tenure with its owner.*



## Appendix B: Storyboard for Assisted Living Facility Concept

To illustrate the concepts that SNL proposed for use in the assisted living facility, the following storyboard was developed. The floor plan and campus map in these slides were to mirror the real facilities. Note that while the ability to track resident and caregiver locations was realistic, monitoring TV viewing habits was not possible given the infrastructure in place at the facility.



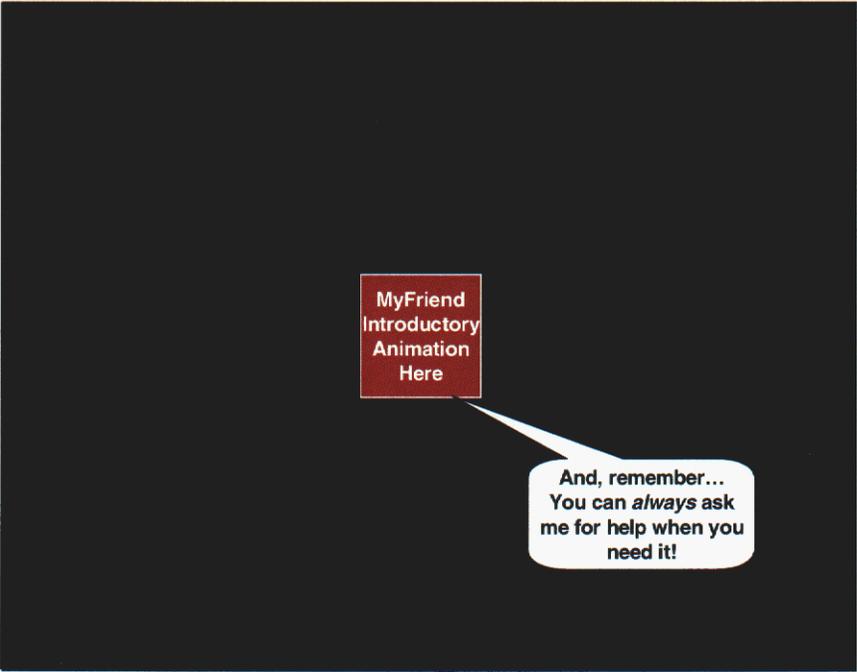
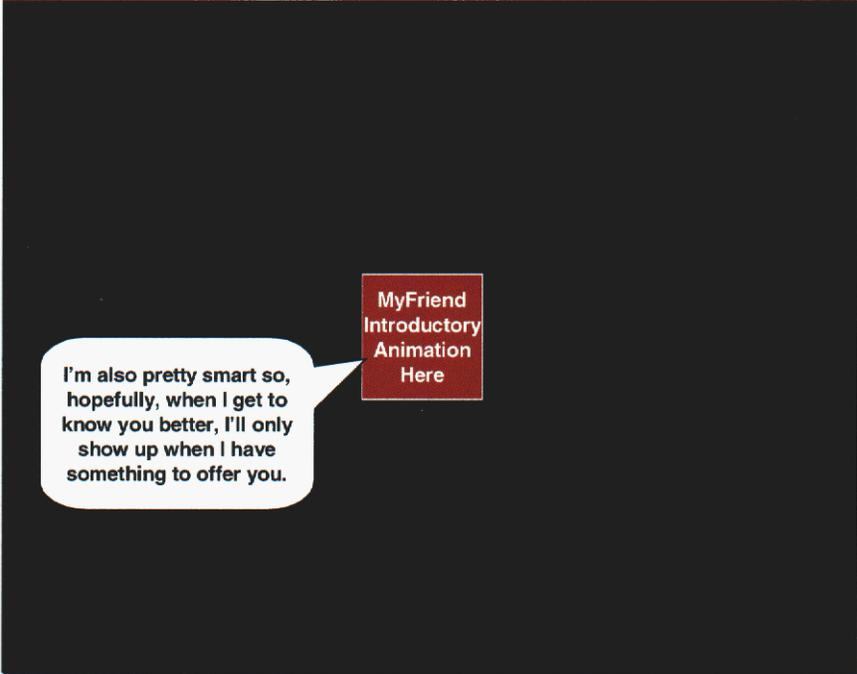
*This starts like the storyboard presented earlier with MyFriend introducing itself and presenting a new user with a brief tour of its capabilities.*

Hi! My name is Chip.  
I'm here to help you  
get things done.

MyFriend  
Introductory  
Animation  
Here

I can help with lots of  
things, but I don't  
want to be a bother;  
so feel free to tell me  
when you want my  
help and when I need  
to back off.

MyFriend  
Introductory  
Animation  
Here



Since you're new here, I'll start our relationship by only doing a limited set of things for you.

MyFriend  
Discovery  
Animation  
Here

As we get to know each other better, I will begin to do more things for you if you want me to.

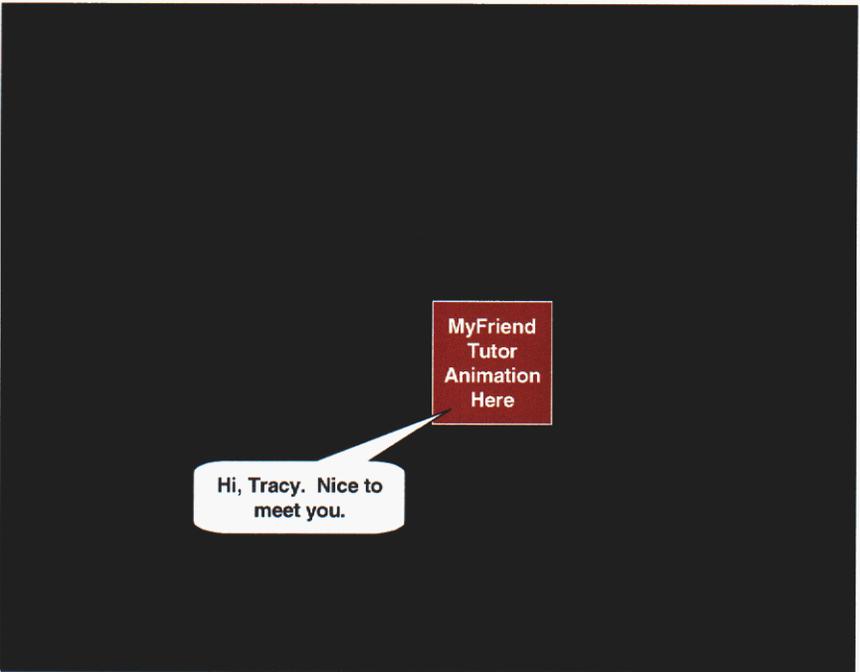
MyFriend  
Discovery  
Animation  
Here

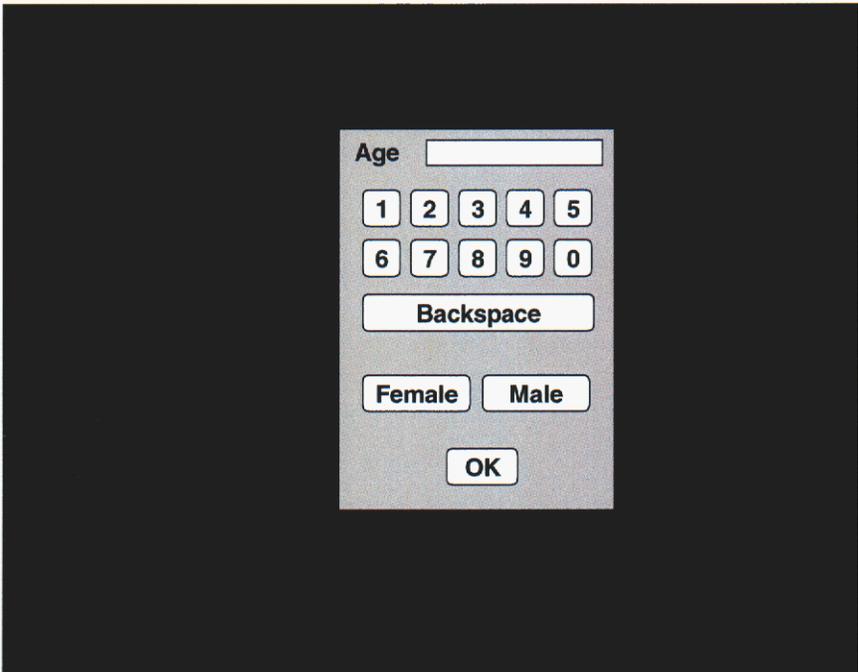
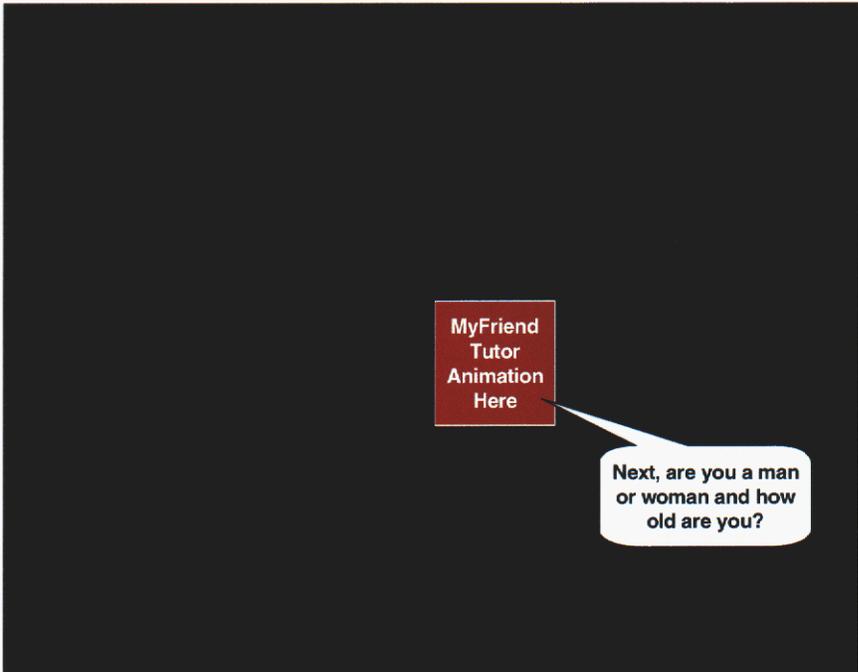
Now, to get things going, I need to get some basic information from you.

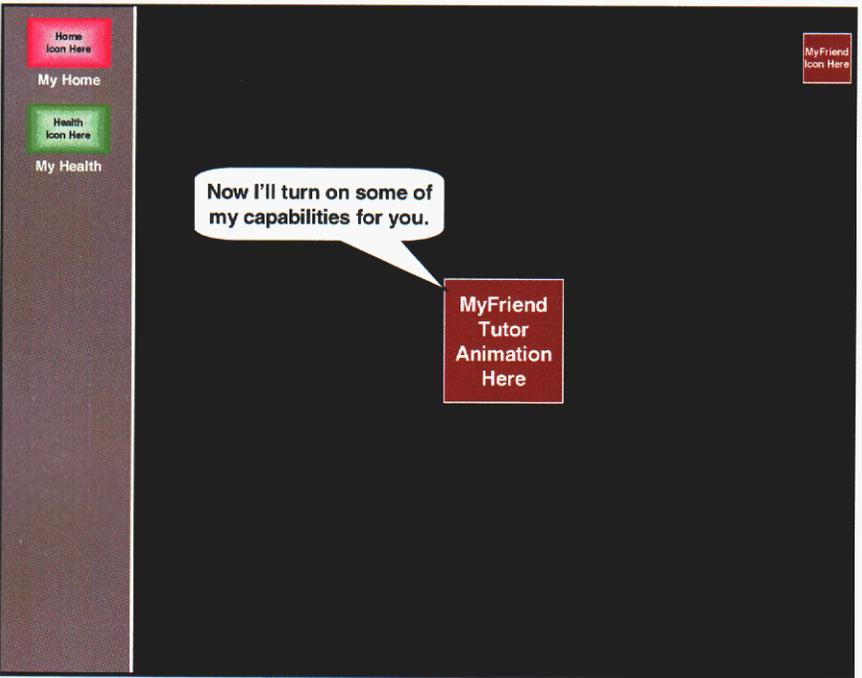
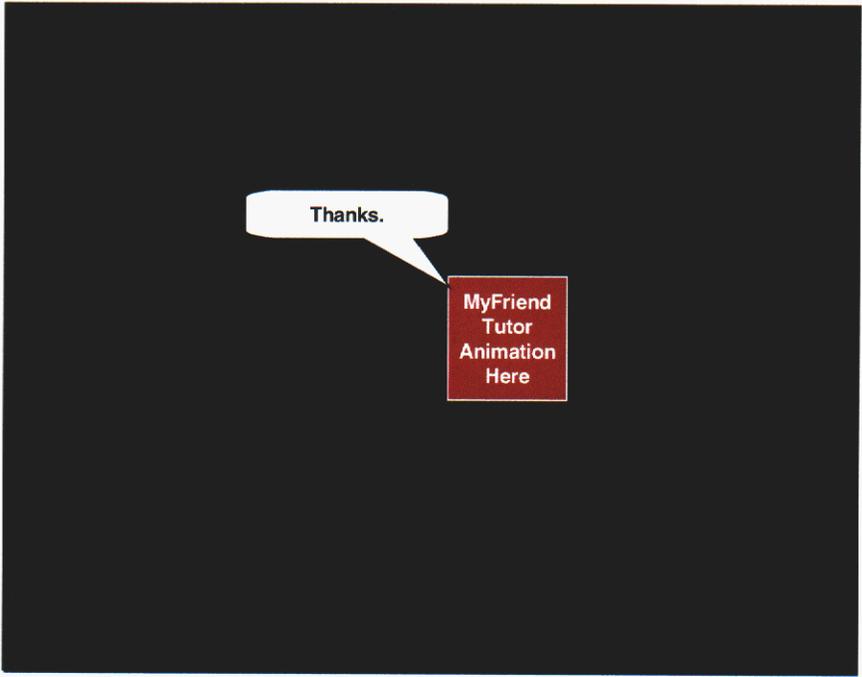
MyFriend  
Tutor  
Animation  
Here

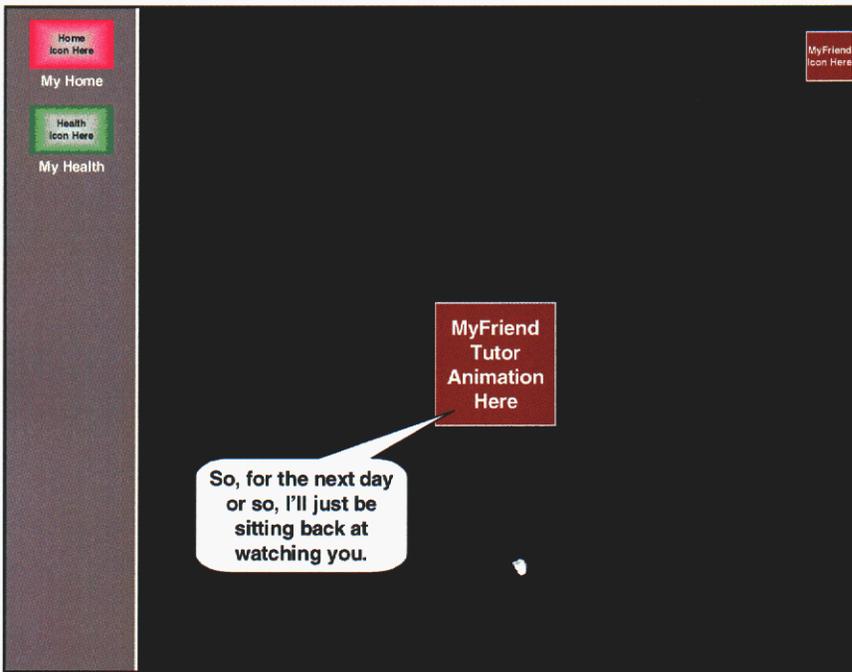
Like...what do you want me to call you?

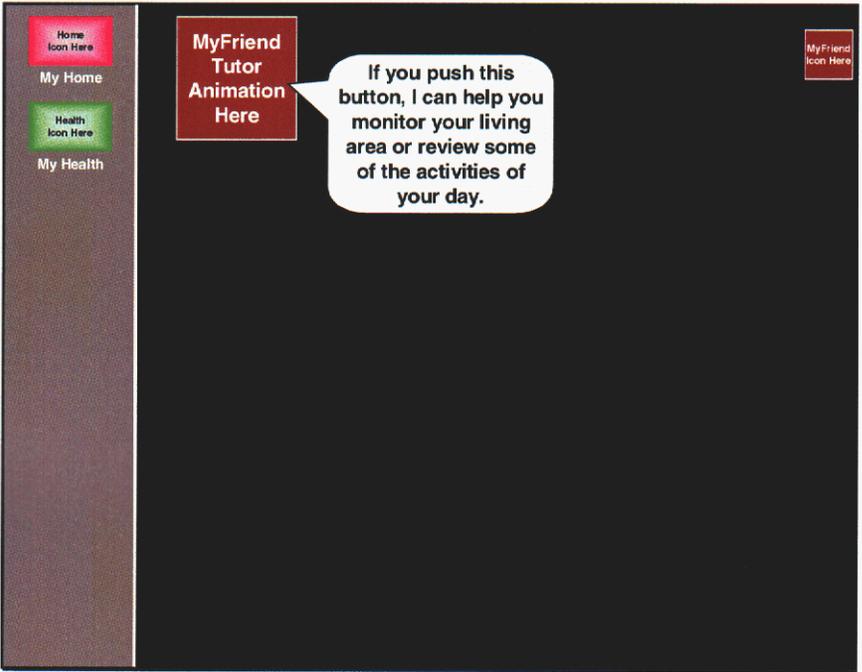
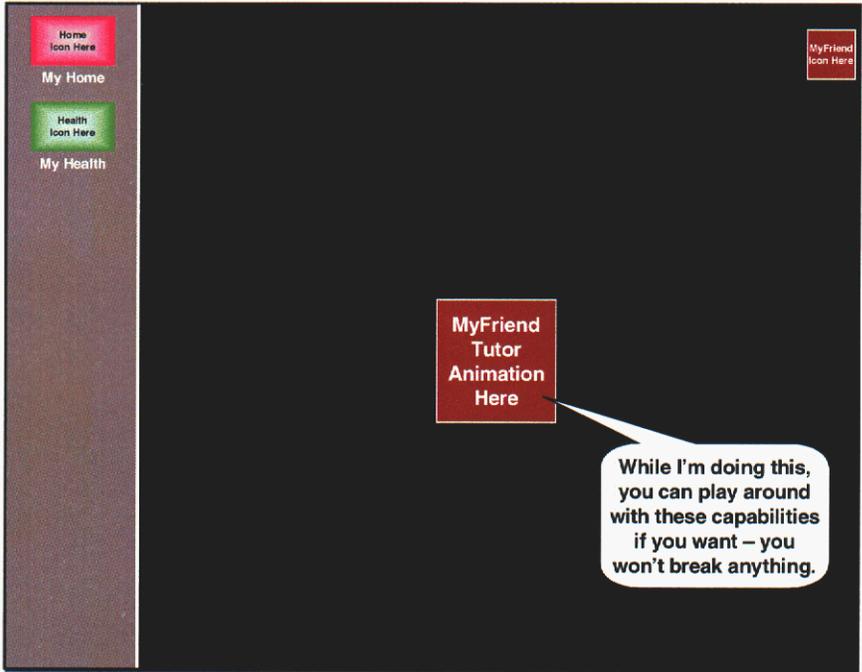
MyFriend  
Tutor  
Animation  
Here

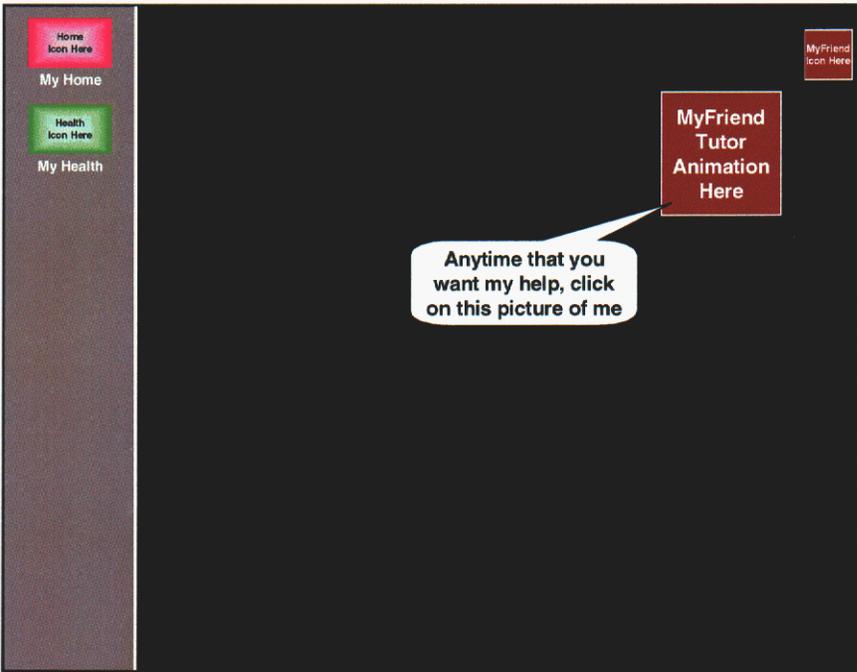
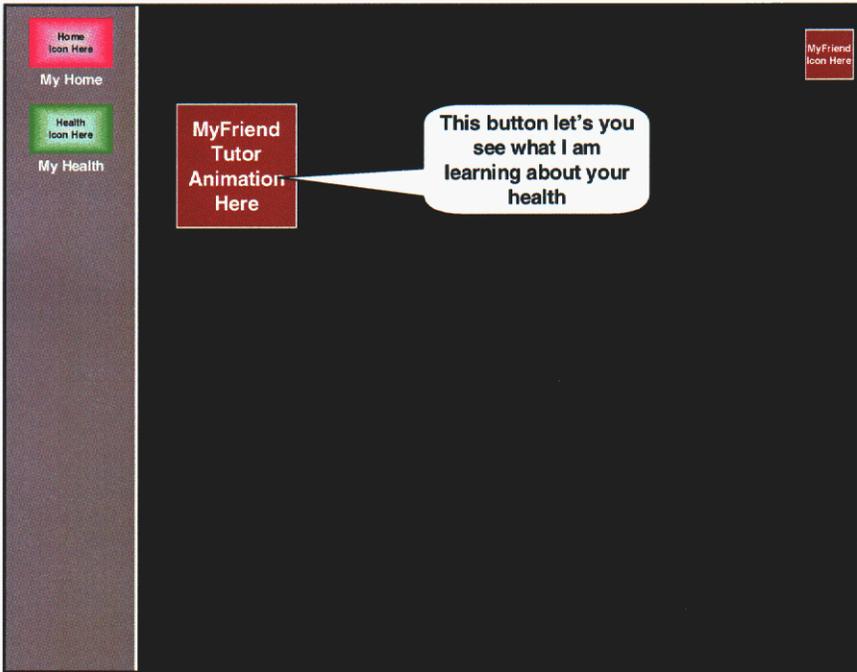


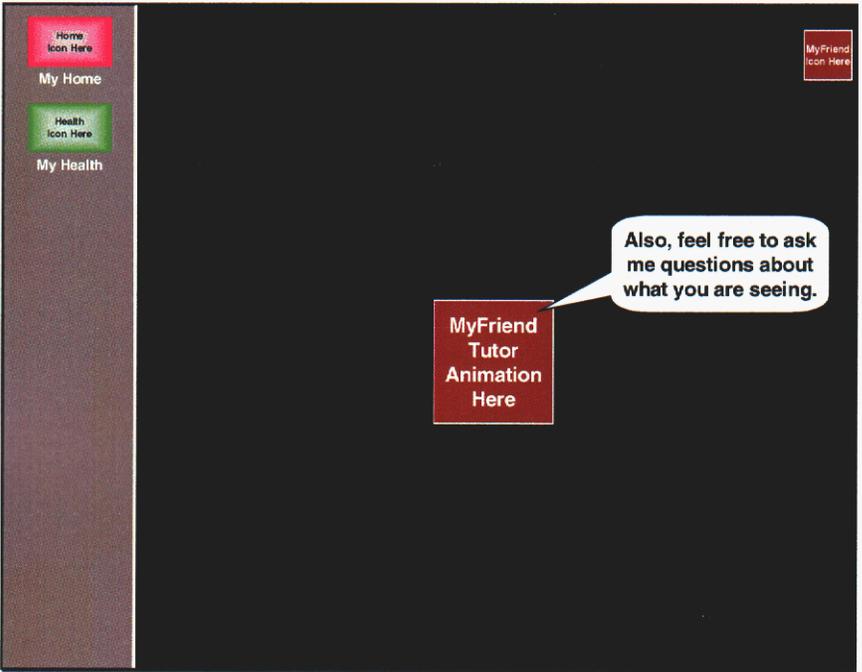
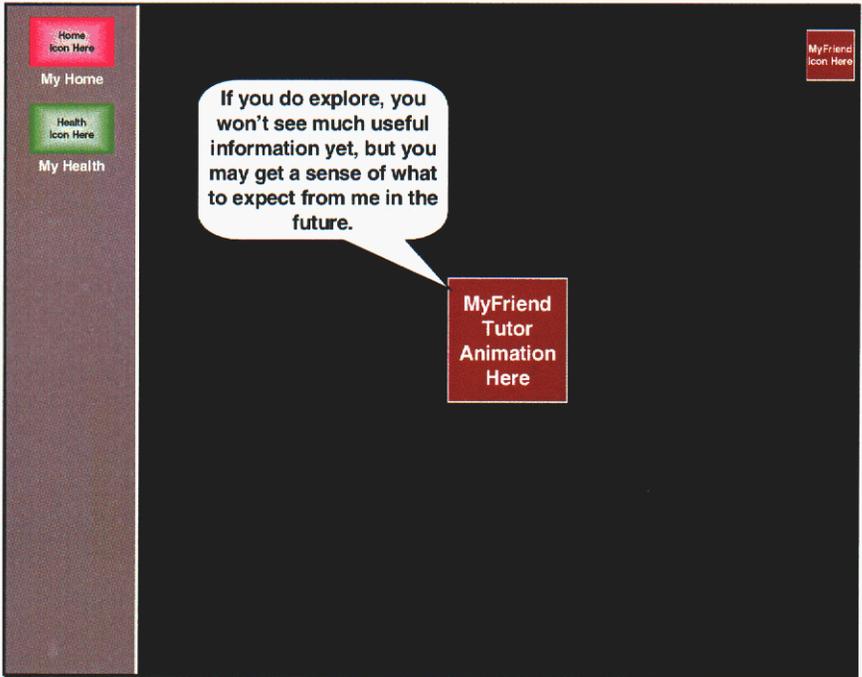


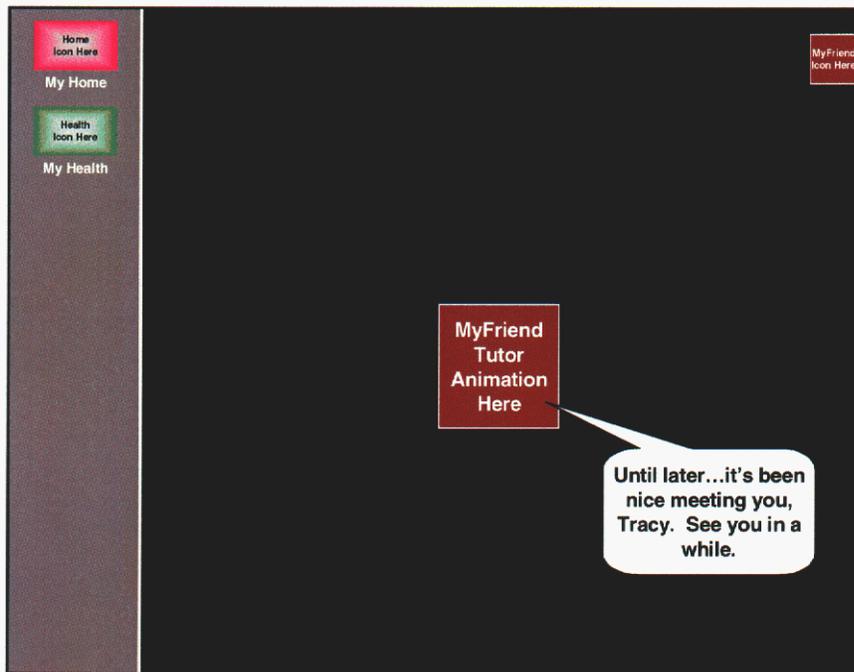
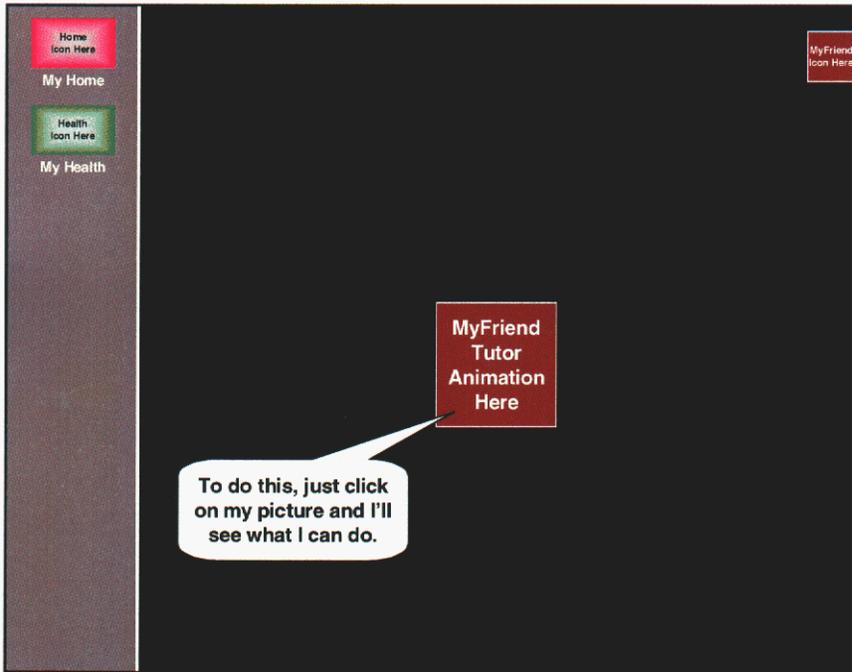


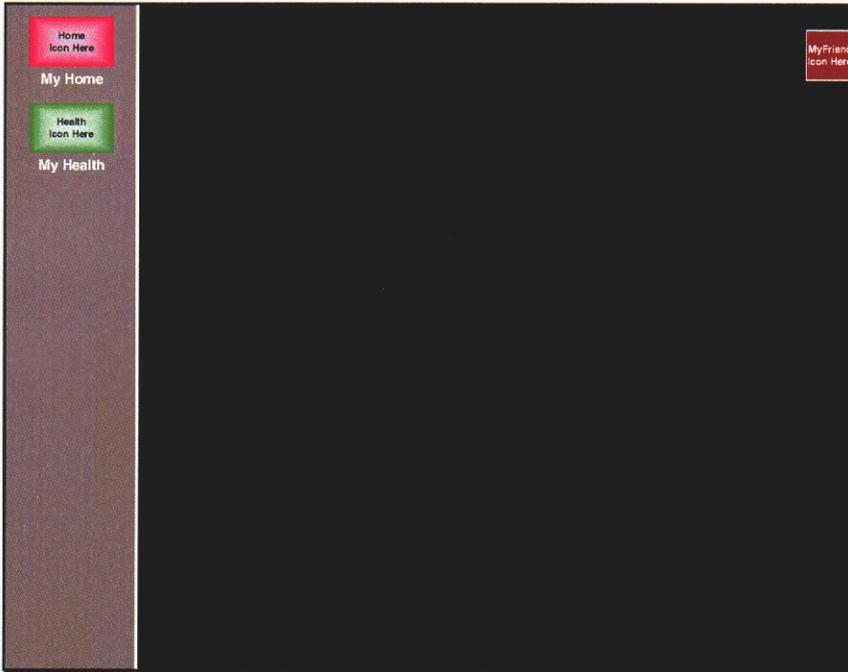




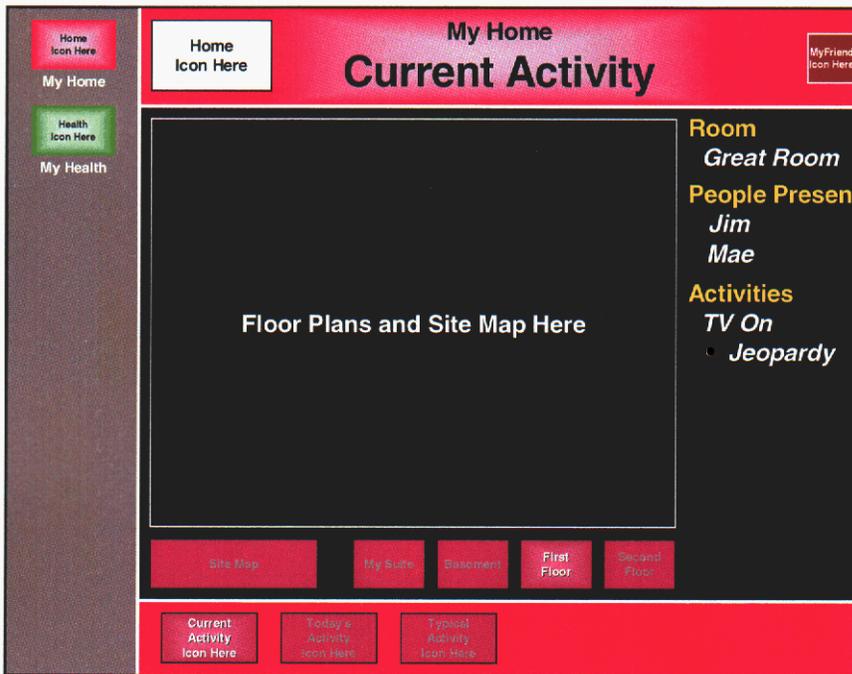








*The concept for the default initial screen layout for The assisted living facility*



*This set of pages would show where everyone is located on the The assisted living facility campus. Icons on a floor plan would identify people. Touching any given room on the floor plan would show who was in the room and, to the degree possible, what was happening in the room.*

**My Home**  
**Today's Activity**

Home Icon Here

My Friend Icon Here

Room  
Kitchen

Time  
6:18P – 7:03P

People Present  
Jim  
Mae  
Sue  
Elsa

Activities  
TV On  
• Wheel of F

Floor Plans and Site Map Here

Second Floor

Next

Previous

Current Activity Icon Here

Today's Activity Icon Here

Typical Activity Icon Here

Home Icon Here

My Home

Health Icon Here

My Health

*This page would allow a person to review their day's journey through the campus (i.e., where they were when; who else was there at the same time; and what was going on).*

**My Home**  
**Typical Activity**

Home Icon Here

My Friend Icon Here

Room  
Campus

Day  
Wednesday

Time  
9:02A – 9:32A

People Present  
Mae  
Elsa

Activities

Floor Plans and Site Map Here

Oatfield Estates Campus

Next

Previous

Current Activity Icon Here

Today's Activity Icon Here

Typical Activity Icon Here

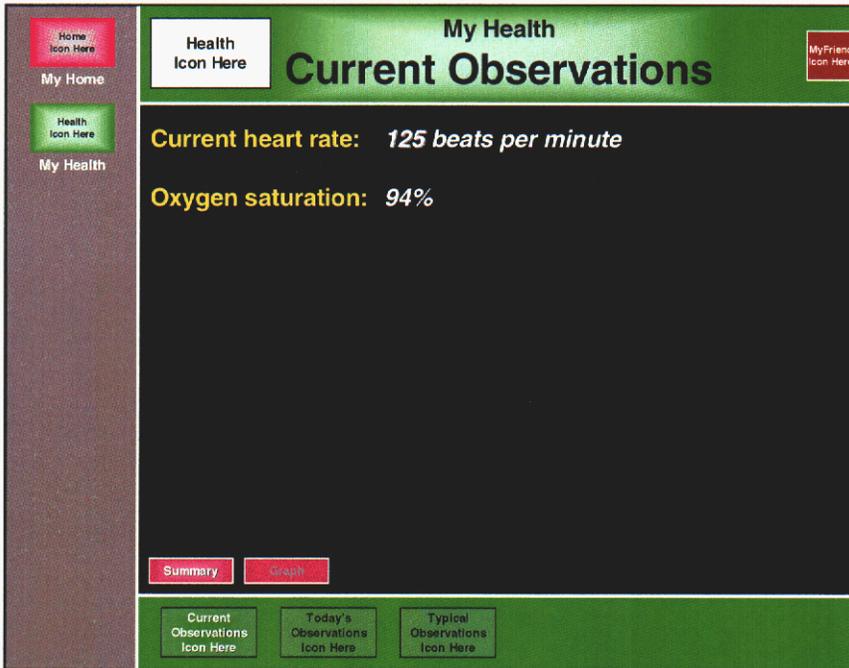
Home Icon Here

My Home

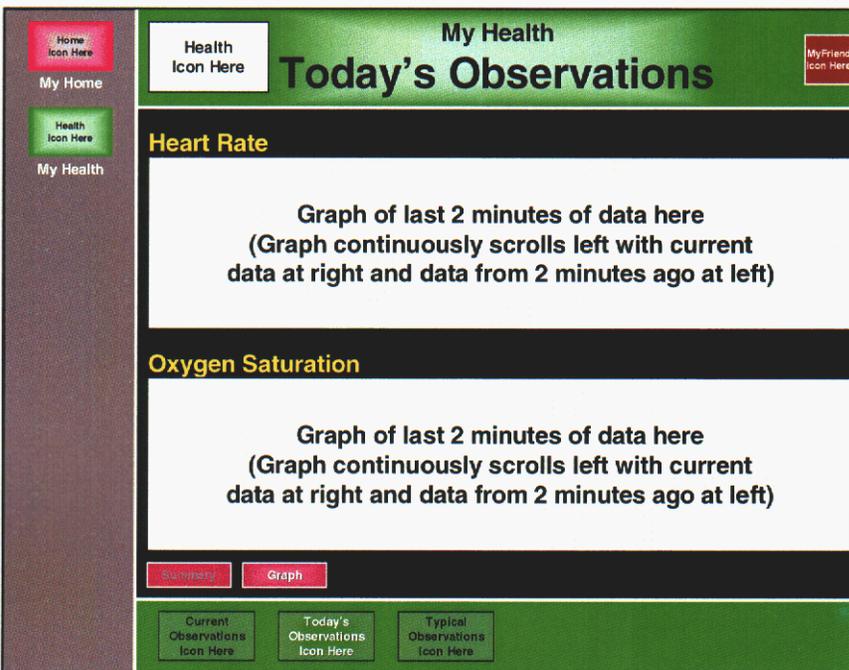
Health Icon Here

My Health

*This page would present the profile that it is developing on the person regarding where they can usually be found at a given time during the week, who is with them, and what they are doing.*



*This page would show real-time data collected from a pulse oximeter*



*This would show the same information graphically.*

The screenshot shows a web interface for 'My Health Today's Observations'. On the left is a vertical sidebar with three buttons: 'Home Icon Here', 'My Home', and 'Health Icon Here My Health'. The main content area has a green header with 'My Health' and 'Today's Observations'. Below the header, there are two sections: 'Heart Rate' and 'Oxygen Saturation'. Each section lists 'Today's average', 'Today's low', and 'Today's high' with specific values and times. At the bottom of the main area are two buttons: 'Summary' and '24 Hour'. A footer bar contains three buttons: 'Current Observations Icon Here', 'Today's Observations Icon Here', and 'Typical Observations Icon Here'.

**My Health Today's Observations**

**Heart Rate**  
 Today's average: 118 beats per minute  
 Today's low: 90 beats per minute (3:35A)  
 Today's high: 141 beats per minute (3:12P)

**Oxygen Saturation**  
 Today's average: 96%  
 Today's low: 88% (3:14P)  
 Today's high: 100% (3:30A)

Summary 24 Hour

Current Observations Icon Here Today's Observations Icon Here Typical Observations Icon Here

*This would show the health statistics collected over the course of the day.*

This screenshot is identical in layout to the one above, but the data is presented graphically. The 'Heart Rate' and 'Oxygen Saturation' sections now contain large white boxes with the text 'Graph of last 24 hours of data here'. The 'Summary' button is replaced by a '24 Hour' button. The sidebar and footer remain the same.

**My Health Today's Observations**

**Heart Rate**  
 Graph of last 24 hours of data here

**Oxygen Saturation**  
 Graph of last 24 hours of data here

24 Hour

Current Observations Icon Here Today's Observations Icon Here Typical Observations Icon Here

*This is the same data show graphically.*

**My Health**

Health Icon Here MyFriend Icon Here

## Typical Observations

**Heart Rate**  
 Average: 113 beats per minute  
 Low: 86 beats per minute  
 High: 134 beats per minute

**Oxygen Saturation**  
 Average: 94%  
 Low: 87%  
 High: 98%

Summary 24 Hour

Current Observations Icon Here    Today's Observations Icon Here    Typical Observations Icon Here

*This would show what MyFriend believes to be typical health statistics for its owner*

**My Health**

Health Icon Here MyFriend Icon Here

## Typical Observations

**Heart Rate**

Graph of typical 24 hours of data here

**Oxygen Saturation**

Graph of typical 24 hours of data here

Summary 24 Hour

Current Observations Icon Here    Today's Observations Icon Here    Typical Observations Icon Here

*And how this typically varies over a 24 hour period*

Home  
Icon Here

## MyFriend's Instructions

MyFriend  
Icon Here

**Event**

Panic Button Pressed

Heart Rate Very Low OR  
Heart Rate Very High

Excessive time in room  
compared to normal for  
time of day

⌄

**Action**

Email Helen  
Email Henry Garcia

Email Helen

Email Helen  
Email Elena Luna

Add Rule

Edit Rule

Remove Rule

Instructions  
Icon Here
Address Book  
Icon Here
Permissions  
Icon Here

*As before, this screen specifies alarm conditions to monitor and responses to initiate when these conditions exist.*

Home  
Icon Here

## MyFriend's Address Book

MyFriend  
Icon Here

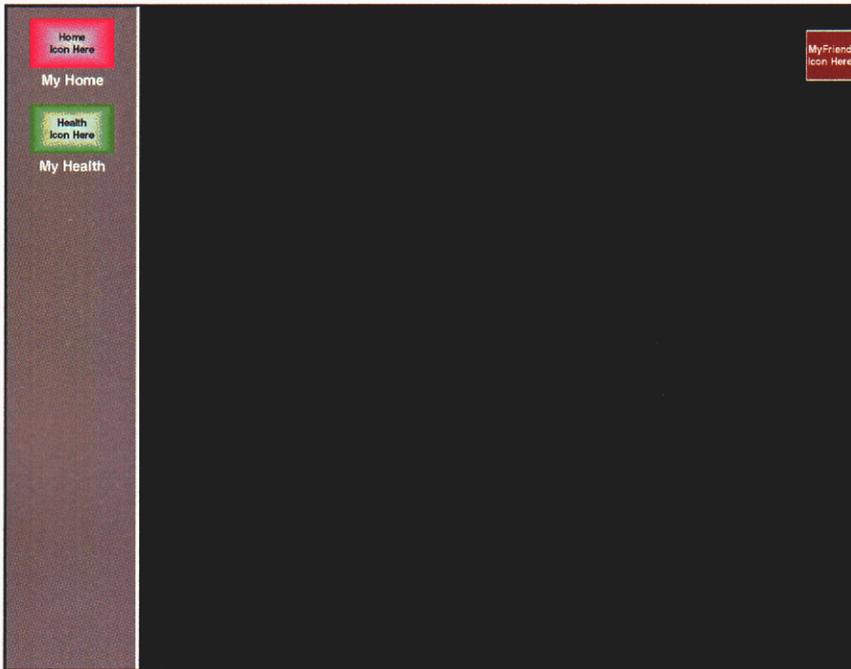
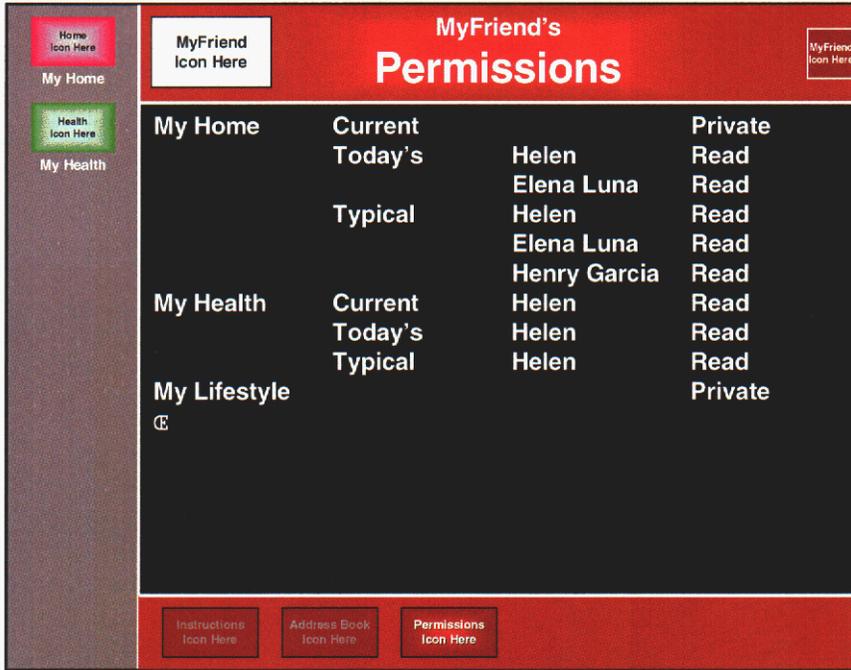
|                      |             |   |  |
|----------------------|-------------|---|--|
| <i>Dr. Middleton</i> | Primary     | <a href="mailto:middleton@cathmed.com" style="color: yellow; text-decoration: underline;">middleton@cathmed.com</a><br>555-465-2983 |  |
| <i>Dr. Pike</i>      | Cardiac     | <a href="mailto:mpike@cardassoc.com" style="color: yellow; text-decoration: underline;">mpike@cardassoc.com</a><br>555-872-1878     |  |
| <i>Helen</i>         | Local Nurse | <a href="mailto:mpike@cardassoc.com" style="color: yellow; text-decoration: underline;">mpike@cardassoc.com</a><br>ext 133          |  |
| <i>Henry Garcia</i>  | Son         | <a href="mailto:henry.g@hccnet.com" style="color: yellow; text-decoration: underline;">henry.g@hccnet.com</a><br>555-822-2649       |  |
| <i>Elena Luna</i>    | Daughter    | <a href="mailto:elena@nmrestore.net" style="color: yellow; text-decoration: underline;">elena@nmrestore.net</a><br>555-625-7502     |  |

Add Contact

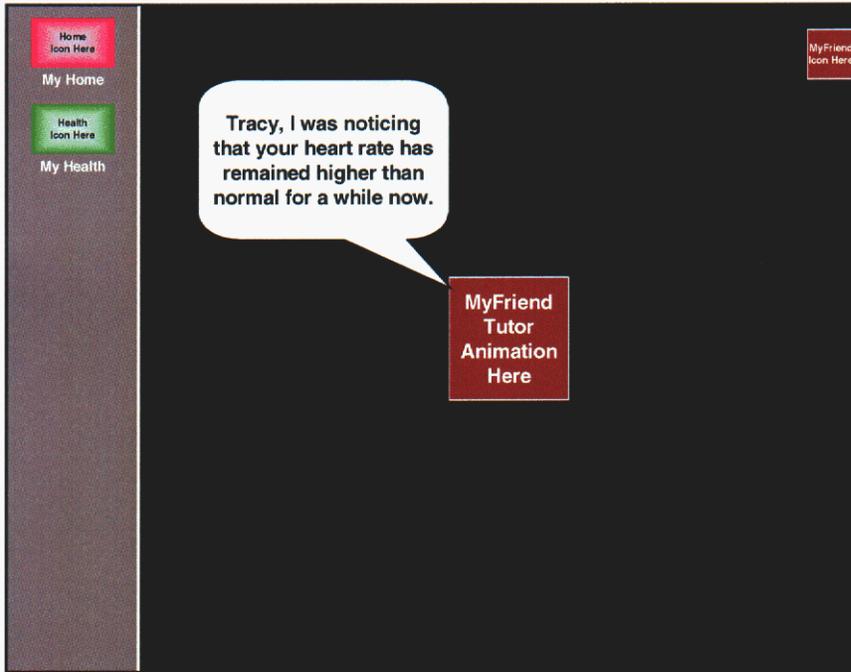
Edit Contact

Remove Contact

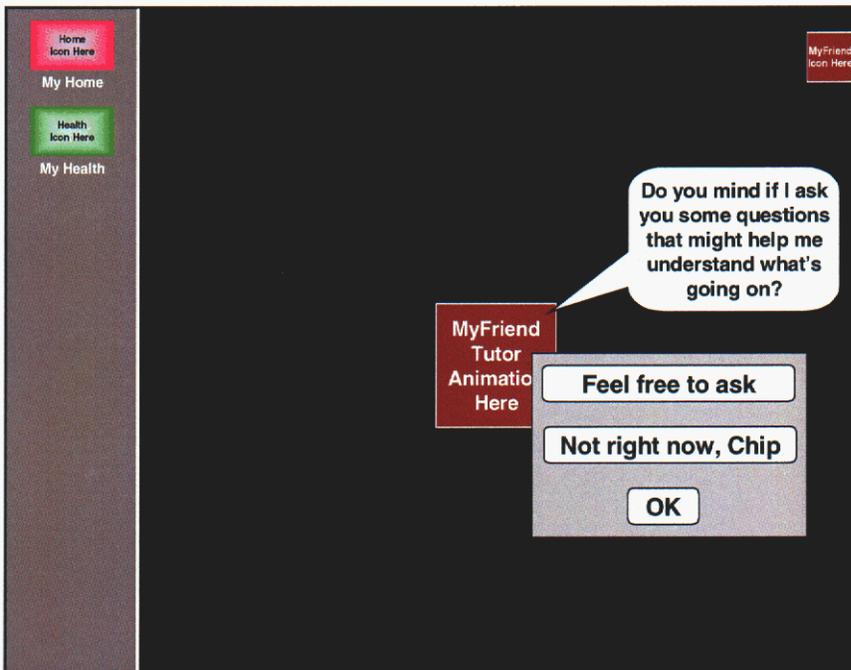
Instructions  
Icon Here
Address Book  
Icon Here
Permissions  
Icon Here



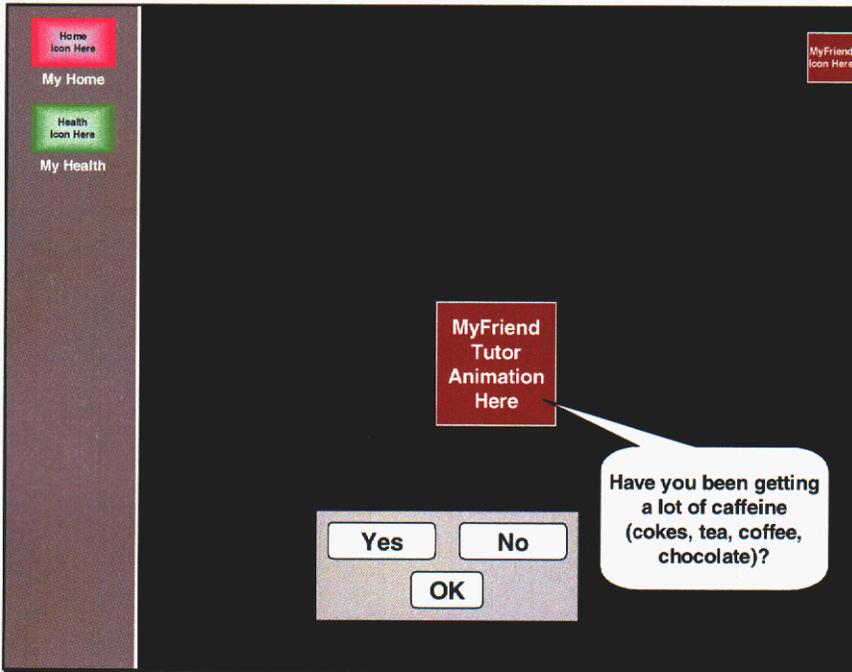
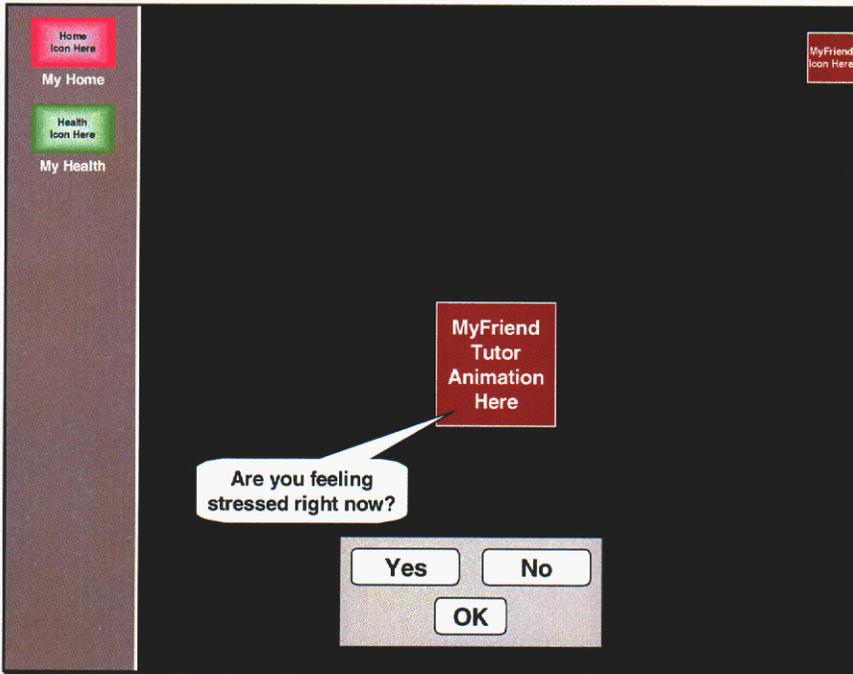
*In the screens that follow, the idea was to show how MyFriend might begin to act on behalf of its owner once it had a sense that it understood what was "normal" for that user.*

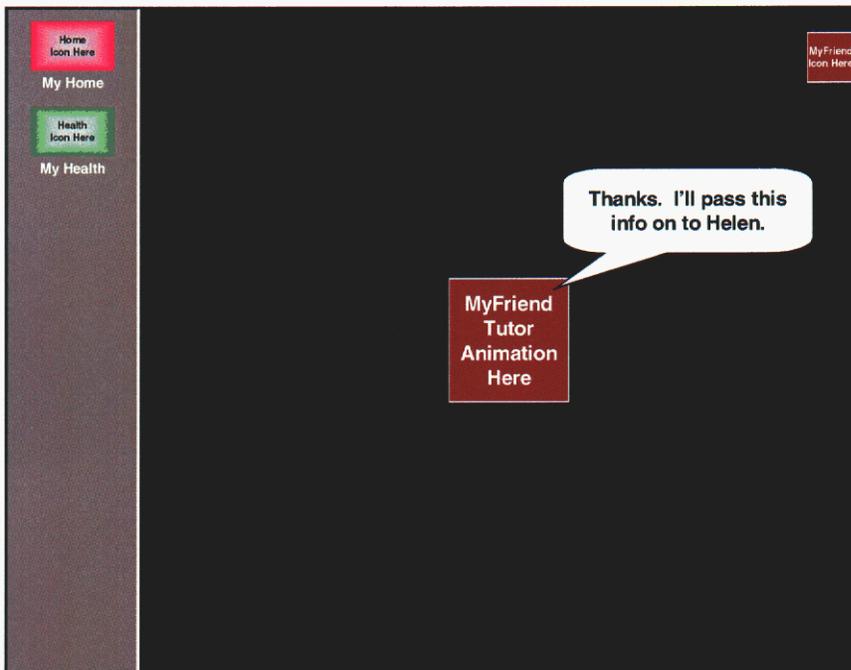
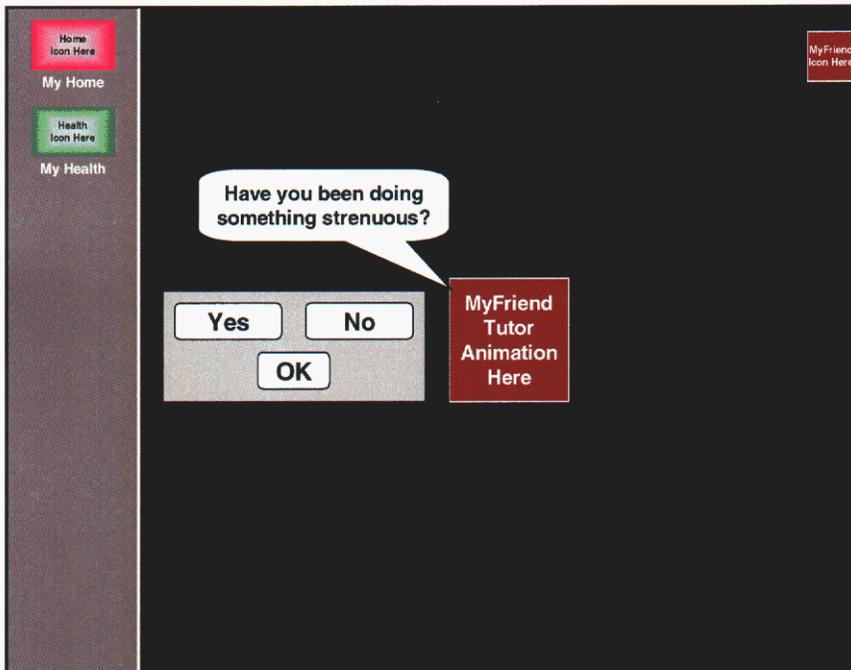


*It notes something it has observed about the person*

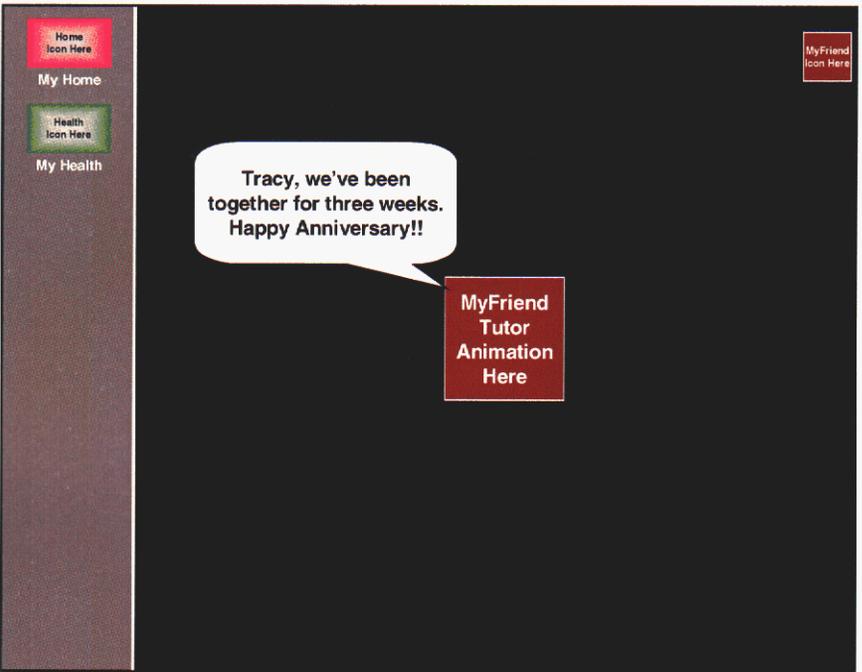
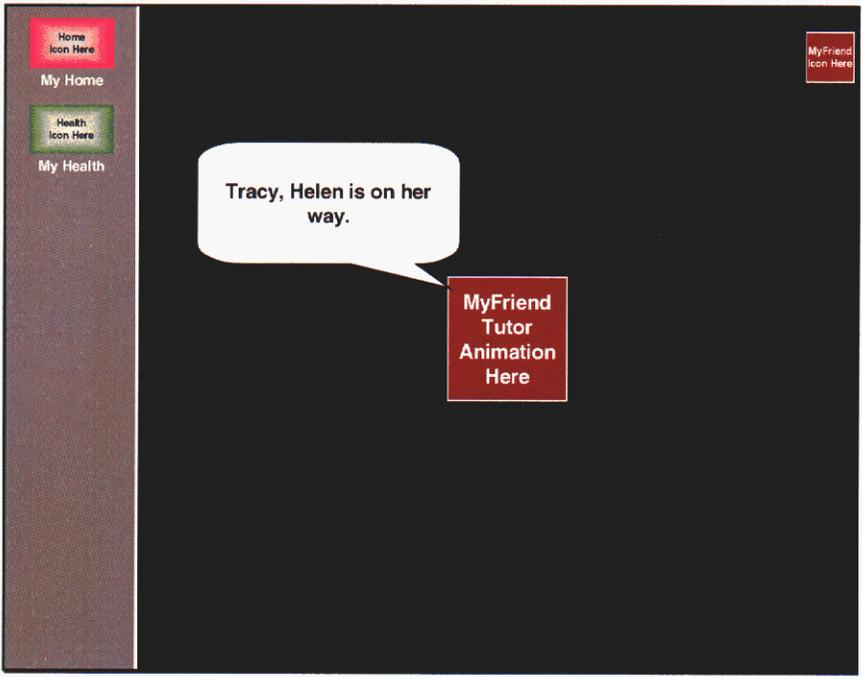


*And goes looking for more information based on what it understands about this observation.*

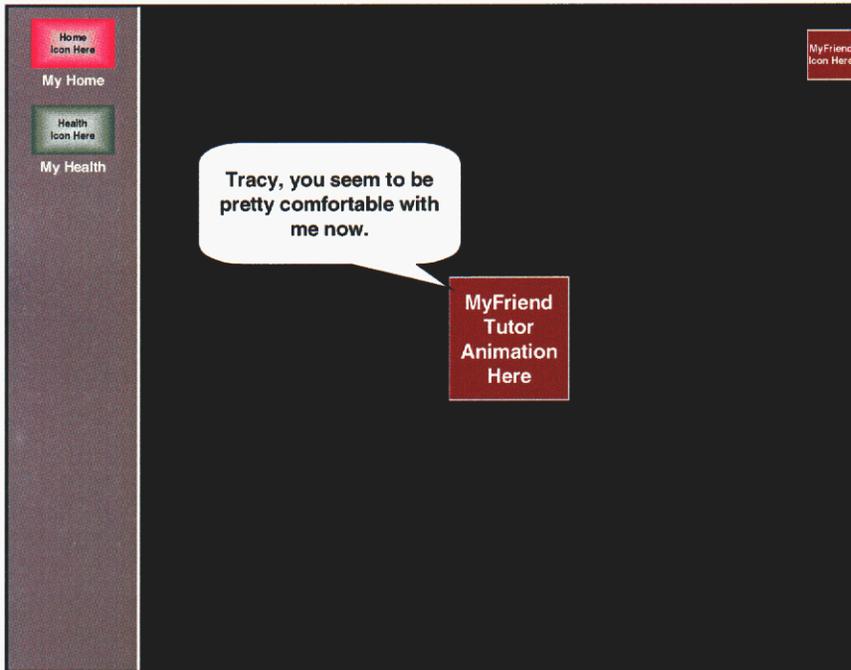




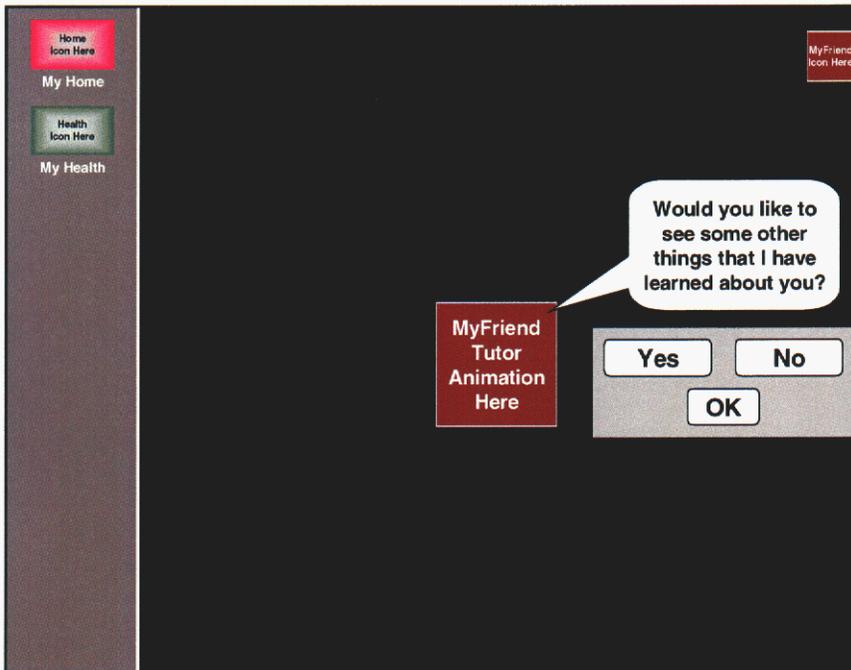
*It passes the data on to one of the caregivers in the home for further exploration by a human.*

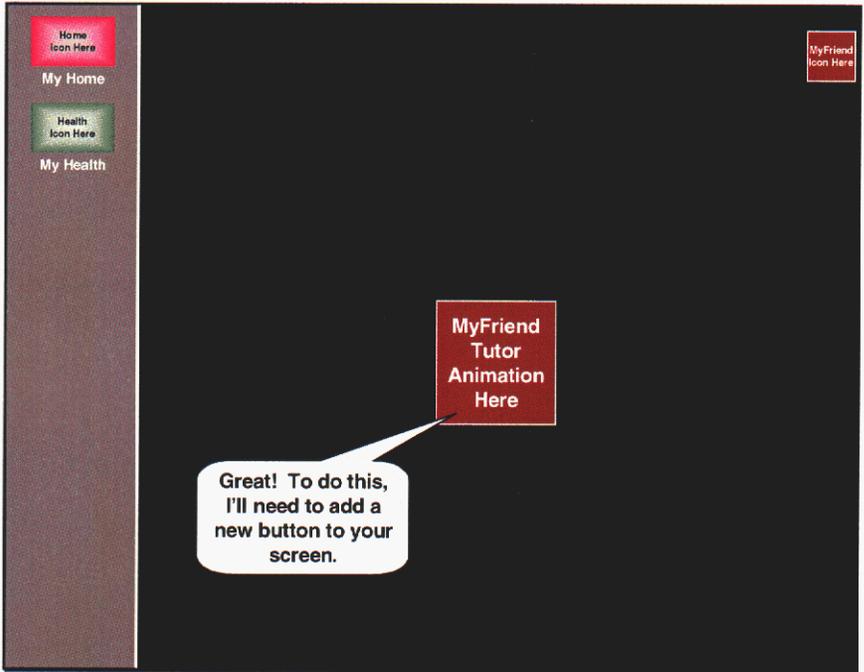


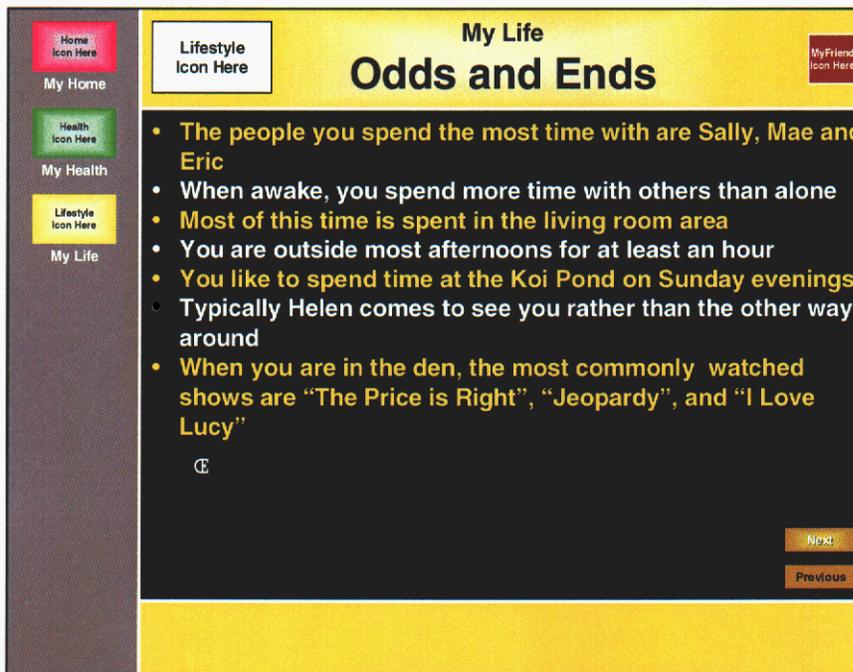
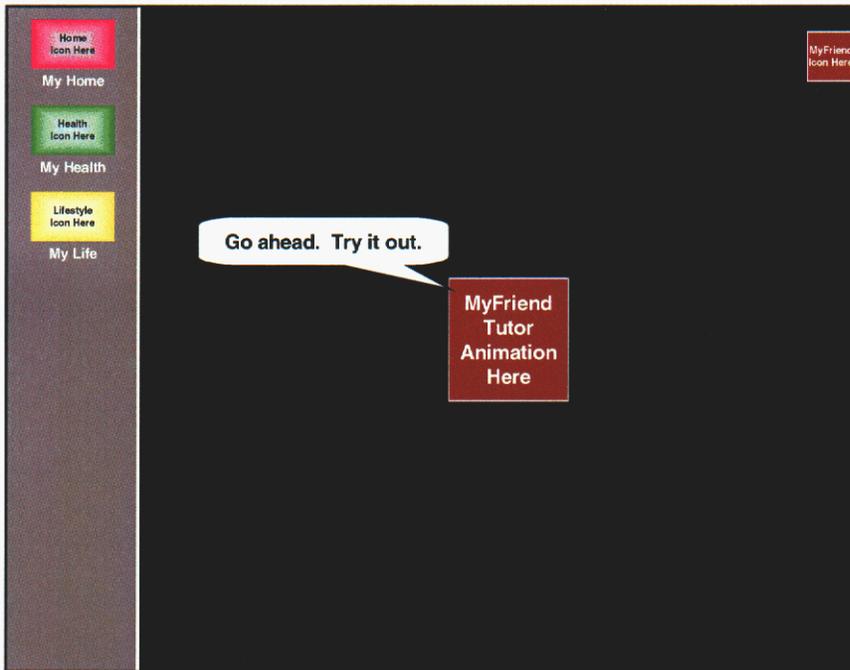
*At key points, MyFriend would engage the person to developing a sense of shared experience.*



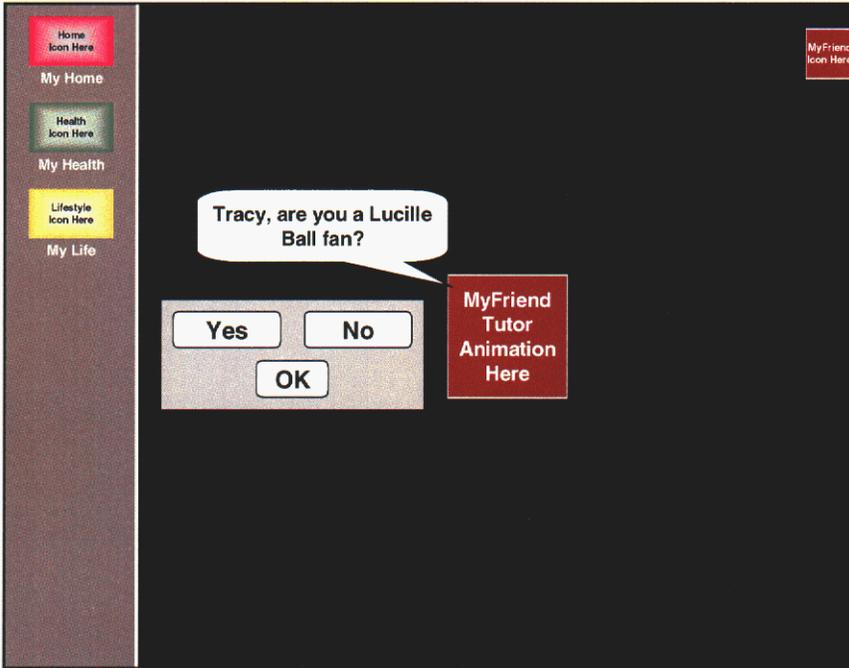
*As the user seemed to grow comfortable with MyFriend, it would begin to show more of its capabilities to the person.*



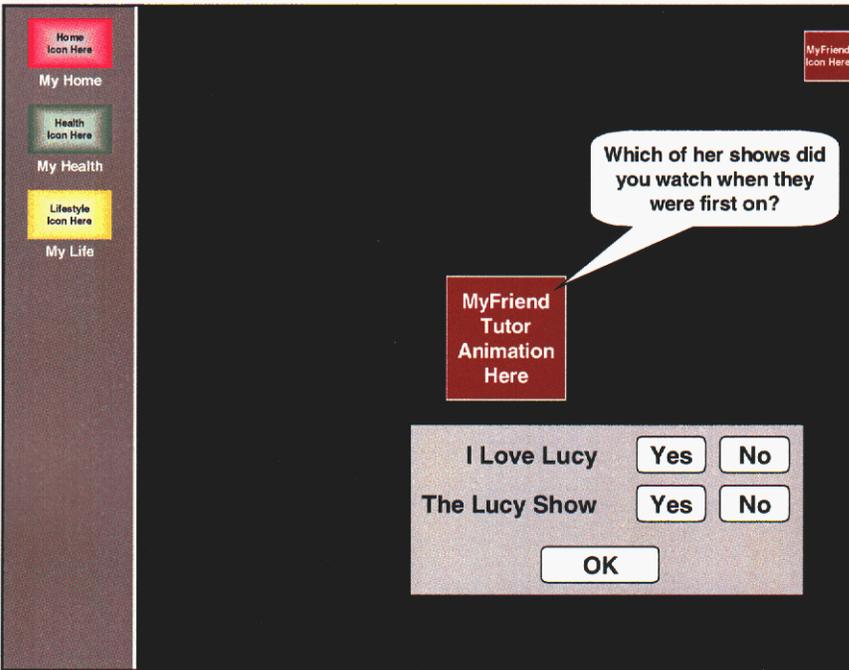


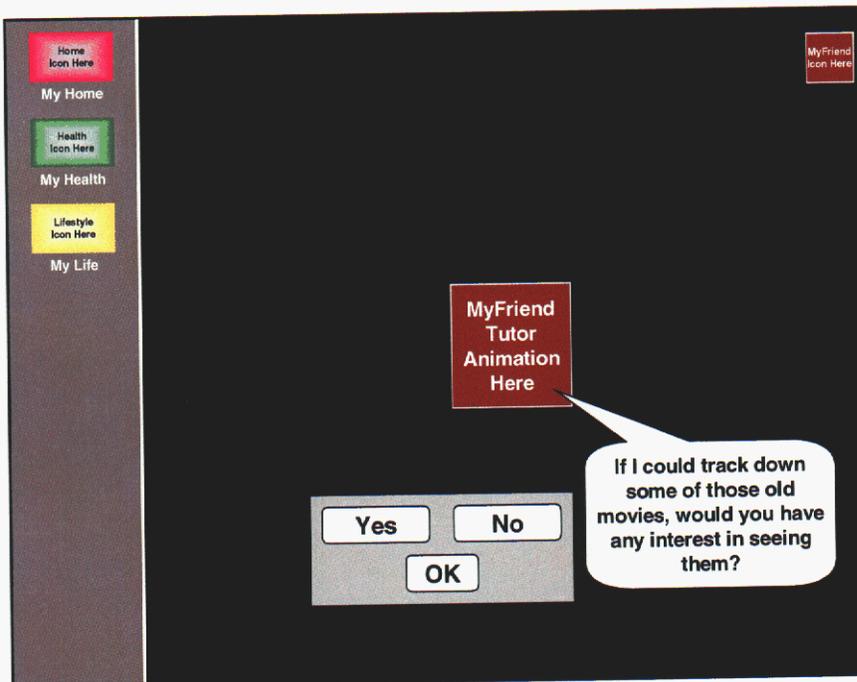
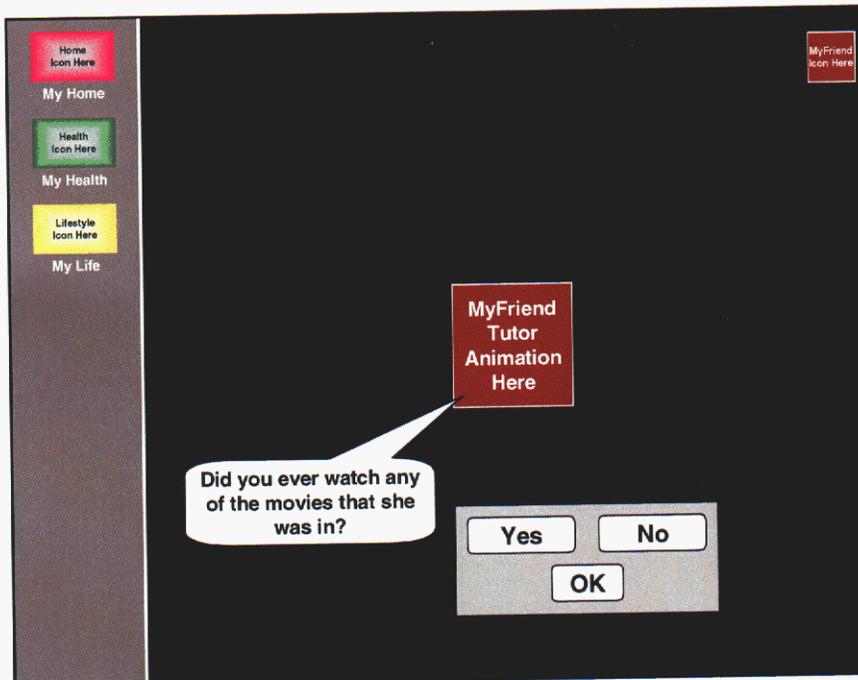


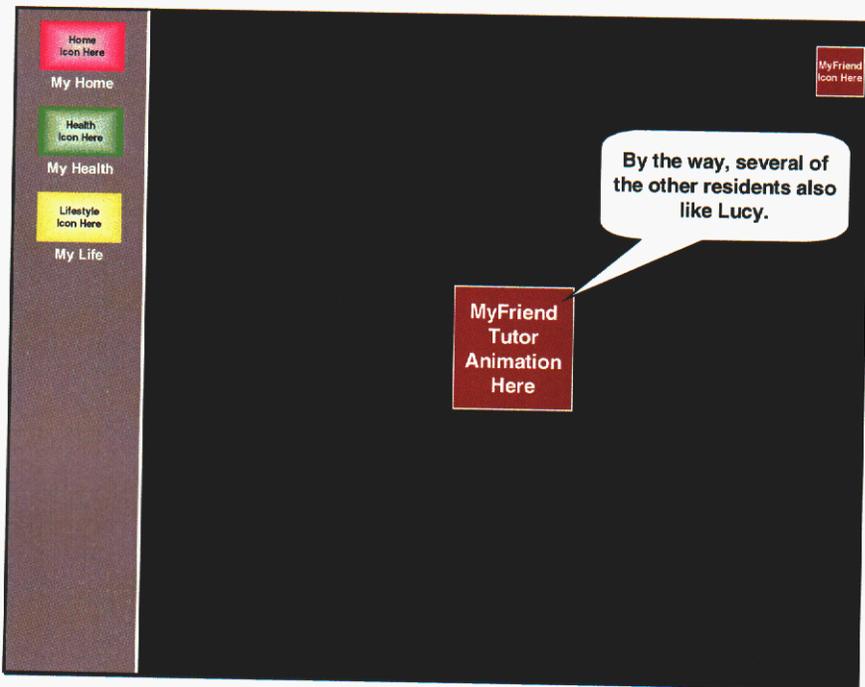
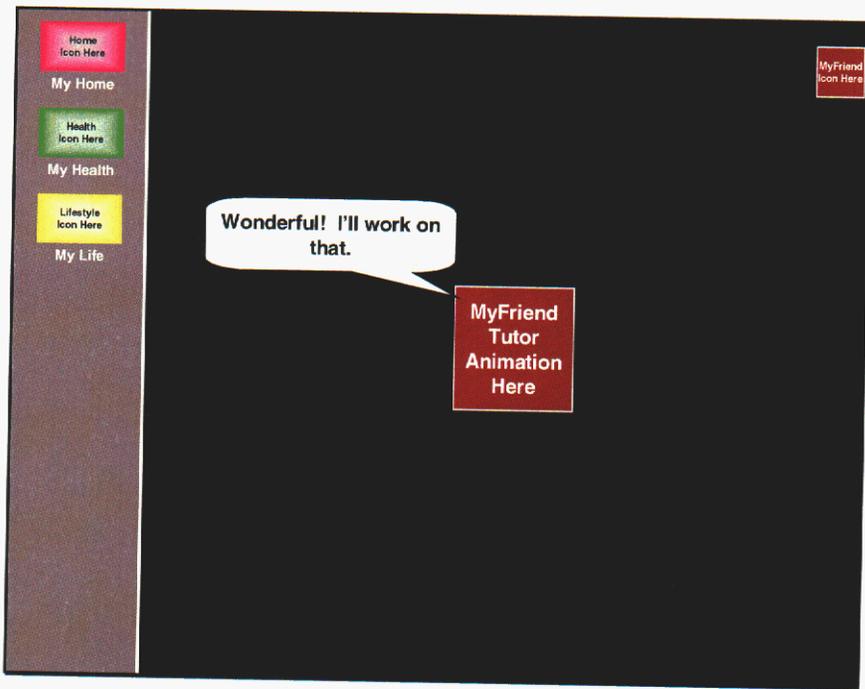
*Here MyFriend shows what it is coming to understand about its user's lifestyle. Note that this info is also of use to a new caregiver who might be trying to understand something about the people with whom the caregiver will be interacting.*

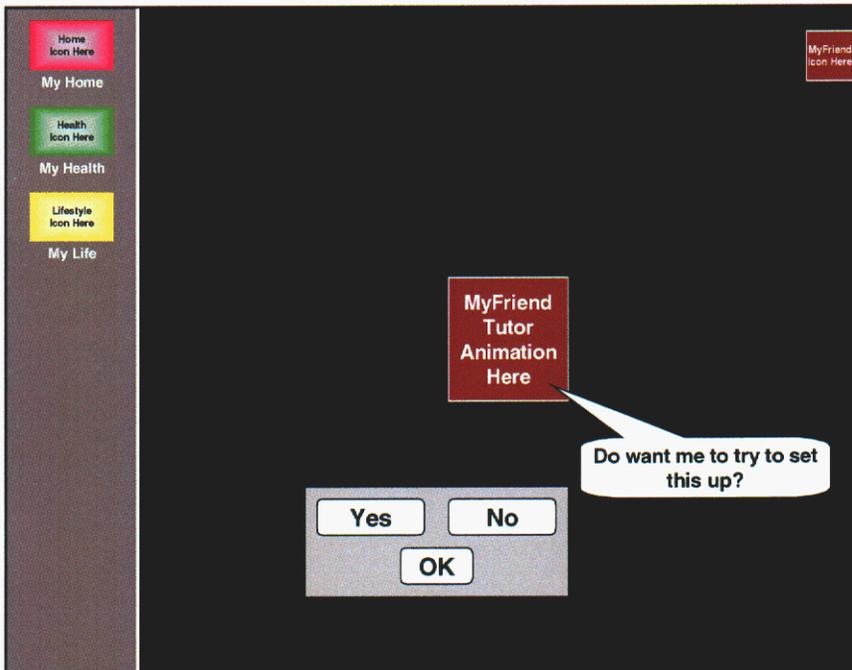
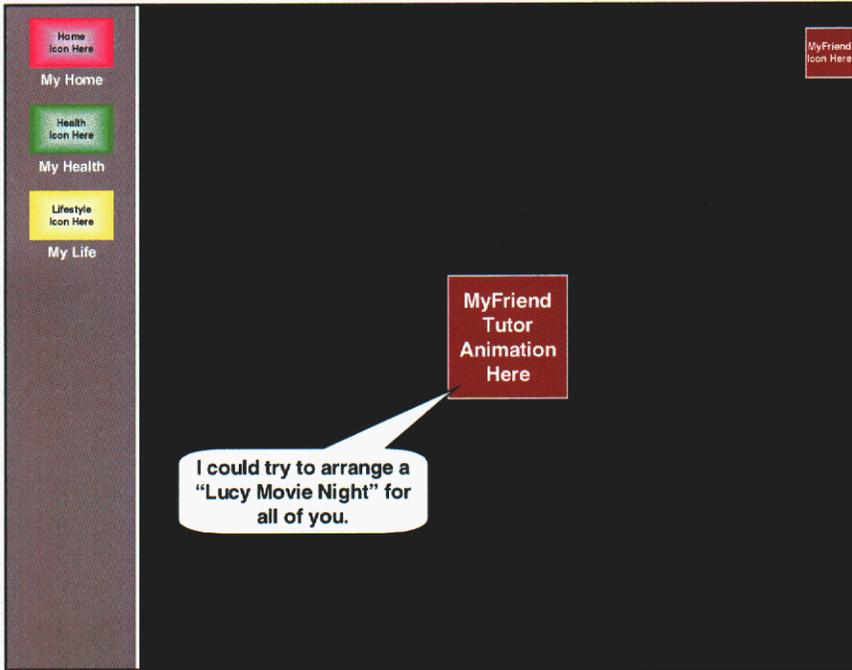


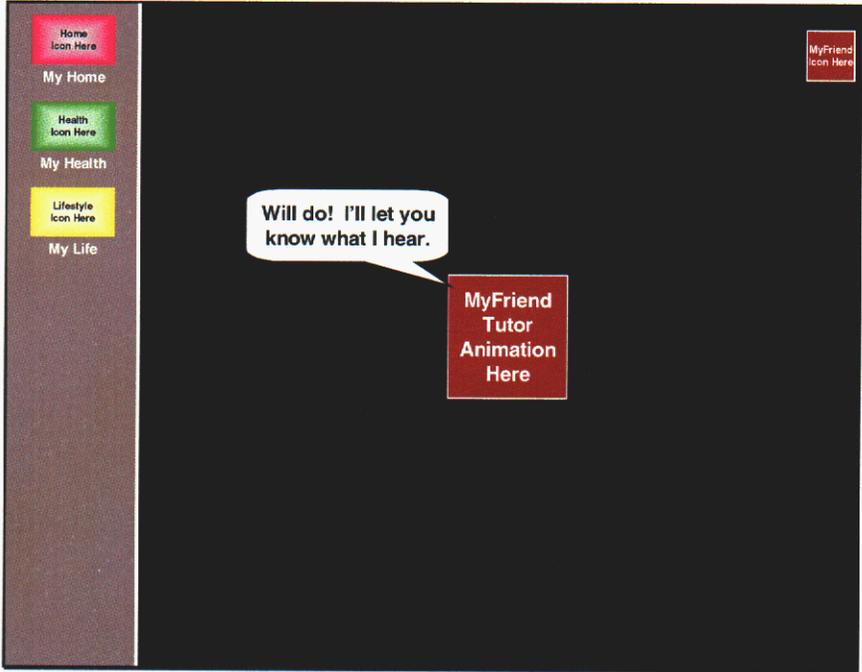
*If MyFriend senses that its owner is abnormally isolated from others in the home, it would take steps to cultivate contact with others living around its owner. Here, based on a record of viewing habits, MyFriend tries to use something that it believes its owner likes to forge bonds with others in the house.*







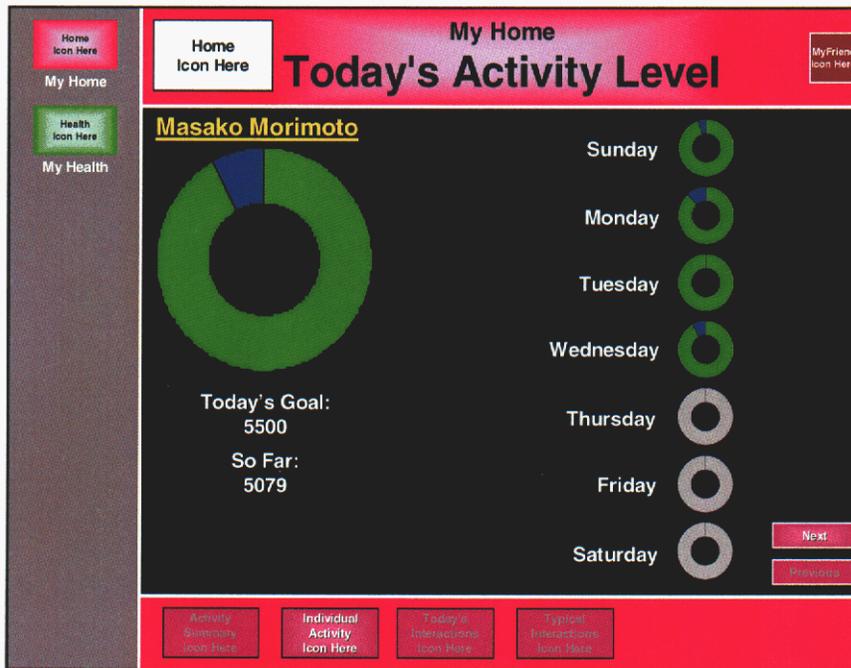




# Appendix C: Final Storyboard



This screen is a roll-up for all residents being monitored by MyFriend. It shows their activity level so far today, their typical activity level, and the goal that they have established for daily activity.



This is the summary for an individual. It shows where the person is today relative to his goal and how he has done so far this week.

*This slide shows where an individual went and when during the course of the day*

*This slide shows what is typical for a given day.*

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