

Digital Home Customer Need Statement (9/12/2010)

This is a customer need statement for the development of a “Smart House”, called “Digital Home”, prepared by the Marketing Division of *HomeOwner Inc* for its *DigitalHomeOwner* Division. A “Smart House” is a home management system that allows home owners (or renters) to easily manage their daily lives by providing for a lifestyle that brings together security, environmental and energy management (temperature, humidity and lighting), entertainment, and communications. The Smart House components consist of household devices (e.g., an air conditioning unit, a sound system, a water sprinkler system, etc.), sensors and controllers for the devices, communication links between the components, and a computer system, which will manage the components.

The need statement will be used by *DigitalHomeOwner* to develop a prototype “Digital Home” system to assess the technical and business issues associated with such development. Although the statement about the Wright family is fiction, it represents information and opinion collected from a variety of potential users and other sources, and provides a realistic basis for development of the Digital Home prototype.

Customer Profile: The Wright Family

- Steve Wright – 76 yrs old – Retired Documentary Movie Director – disabled
- Mini Wright – 72 yrs – Housewife
- Stanley Wright – 47 yrs – Son and Product Manager of Splice Inc.
- Vinni Wright – 42 yrs – Housewife and an online Librarian student with at Cal State, Los Angeles.
- Michelle Wright – 18 yrs – freshman college student (Bachelor’s of Arts student) at Cal State, Los Angeles
- Robert Wright – 16 yrs – high school student

All live as a joint family in Los Angeles, CA.

Introduction

Steve and Stanley Wright have decided to buy a new house in Los Angeles, CA. Since they are a well-off family, they have decided to acquire a house where all the members can live comfortably, efficiently, and safely. With a large, modern house comes a greater desire to ensure that the house is well maintained and all the facilities are easy to access. So, the Wrights are willing spend about 10% more than current house value (up to \$50,000 additional), to add some automated facilities to the house. They want a house that is easy to maintain and also has a two-year warranty on the structure and its infrastructure. They also want the house warranty to be renewable (just like a new car).

Many things have influenced the Wrights’ housing needs and desires; one of them being that Steve’s wife, Mini, has a heart condition. He wants to make sure that his wife is well-monitored, and taken care of as soon as she has any trouble. Another reason to buy such a house is that it provides Steve good mobility and accessibility in the house since he has to use a wheelchair. Another motivation is that Stanley’s wife, Vinni, is a very busy housewife, managing a large family and taking online courses. The children are typical 21st century teenagers and want the latest

technology available in the house. Steve and Stanley also believe in conserving energy and have been a part of many energy conservation programs such as SaveEarth (http://www.save_earth.org). Also, in this multi-generational family, support for effective communication and security are essential.

Super Contractors Inc. decided to take on the Wright home as one of their major projects on their 50th anniversary. To support their efforts they have engaged the DigitalHome Division of HomeOwner, Inc. to assist in the development and implementation of the “smart” features of the new house. Super Contractors has set up interview of the family, with DigitalHome personnel participating. The following section is based on the interview.

Wright Family Needs and Desires

The family members are looking for a wireless, safe and secure, easily usable house with good home entertainment facilities and other facilities that bring a convenient and efficient lifestyle to the Wright family.

For Steve, the most important aspect in the house is accessibility. He wants to be able to control the facilities in the house with voice recognition. This will make his life simpler since he can control the TV, the music, the lighting, and the air with his voice (at a minimum, in his room). To enter the house, he wants the house door to open automatically with a code.

Mini has heart problems and wants to make sure that the house accommodates her special health care needs. She wants a heart monitoring system that will assess her heart rate and blood pressure every morning, and is capable of notifying emergency services in case she has an attack. Because of her condition, she is also concerned with the quality of air that she and her family breathe. She wants air purification for the entire house, and also a way of determining the air quality (e.g. humidity, temperature, carbon monoxide, smoke, fire, dust, and pollen levels)

For Stanley, energy conservation is a very important factor. He wants the lights to be capable of turning on and off automatically, depending on where the family members are located. He also wants solar panels that are capable of helping with energy conservation by providing heated water and electricity. Since power outages may occur, he also wants to be capable of controlling the status of the electronic appliances in case of emergency and have a backup power source that may take over, and re-establish power for the house.

Vini is a busy housewife since she has to cook and clean every day. However, she is also taking online courses for a Librarian degree. She needs some help with the daily household chores. She wants to be able to see the status of various household devices. For example, if she has put clothes in the dryer, and she is standing in the kitchen cooking dinner, she wants a message on the fridge telling her that her clothes are done. She also wants to be able to clean the kitchen and vacuum the house using automatic features. When she is cooking, she would like independent and automatic control of all stove heating elements. When the dishwasher has a certain number of dishes, it could be set to start dishwashing automatically.

The family would like the capability to manage their appliances and automated features through touch screens located in various rooms that permit them to interact and control all of the features at the touch of a button/screen. The interface should save time and increase the control, communication, and livability within their home. As an option, they also want to be able to control their home devices through the internet, allowing communication and control even when not at home. For example, they would like to be able to adjust the lights, set the alarm system, adjust the A/C temperature, and verify that windows and doors are shut, all over the internet.

Michelle is a fun loving teenager with a “cool” attitude and a bunch of friends who come and party at her place. She wants to have the place ready and nice for her social gatherings. She is interested in the idea of entertainment modes (date mode, pool party, etc) which enable certain desired features. For example, when she selects pool party mode, she wants a good selection of party music, along with the correct lighting that sets the mood for the party. She also wants her entertainment system to be capable of recording her favorite shows while she is away at school.

Robert is a “high-tech” teenager, with all the latest techie devices (iPhone, etc.). He would like to have the ultimate in technically advanced house; besides wanting intelligent appliances that “interact with humans”, he is also interested on keeping up with technology and having the latest gadgets and tools. He wants a house that is capable of knowing when he is close to home after school and has everything ready (e.g. find the TV channels and programs he likes on TV, set A/C temperature in his room, prepare his favorite snack, etc.)

The Wright family believes in living in a “home” and not a house with a lot of atomization and digitization, giving it the look and feel of a laboratory. They want to feel at home when they are in this automated house. If that involves removing the voice activated system and using only touch pad system, then they are willing to take that. Most of the family members have a high level of knowledge in technology and use of software; but, Mini still prefers older, traditional ways of dealing with household features. She wants to make sure that all the technology is easy to use and understand.

The whole family wants a safe and reliable house that takes good care of the members. However, the major concern of Stanley (since he has a good background in this area) is that the house will not start controlling the people in the house. Basically, he does not want the house to tell them what to do by learning their habits. For example, the house should not be putting ingredients into their food! Or it should not be taking care of the children in the house. The whole family wants to have manual control of the house at any point or time during their use, to ensure their safety in case of any system failure.

The family also looks for a secure place to live. Therefore, they have big concerns about acquiring an automated security system which includes alarm and sensors that are easily manageable and can notify to the police and fire department in case of an accident. The automated system should also turn on the lights if any intruders come in, and notify the owner and police department if someone actually does break in. The system should also prevent unauthorized personnel from gaining access to or controlling the automatic features of the house.