

## **TOWARDS A SMART LIVING ENVIRONMENT**

### Happy Healthy Living with Ambient Intelligence and Technology

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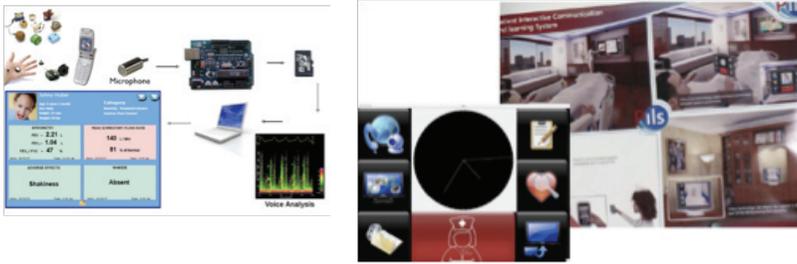
#### **1. ACHIEVING WELLNESS THROUGH TECHNOLOGICAL INNOVATION?**

Achieving wellness is a Grand Challenge. We are concerned about the quality of life for ourselves and for our society. As human beings we want to develop and cultivate our untapped potential for a happy, healthy, creative and fulfilling life. Technological innovation may be just the key to unlock human potential for the Holy Grail of wellness. Wellness has multiple dimensions: physical, emotional, occupational, social, intellectual and spiritual (Hettler 1976). Below we briefly describe interesting design computing projects employing technological innovations to contribute toward a smart living environment for wellness.

#### **2. CREATIVE DESIGN COMPUTING FOR HEALTH, AWARENESS & ENTERTAINMENT**

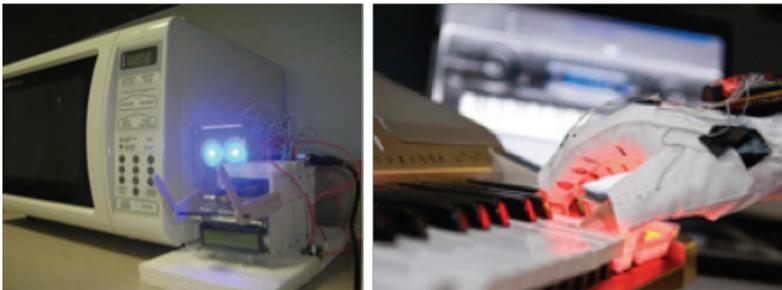
Living well at home is a concern for people of all ages. Children with asthma enjoy playing outdoors as much as others. With the Pervasive Remote Asthma Monitoring (Chhabra 2007) added to a cell phone or a cute animal pendant worn on their necks, children's coughing and wheezing can be recorded, processed through digital signal processing, sent through the network and incorporated into patients' electronic medical records and alert caregivers remotely (Figure 1 left).

**FIGURE 1.** LEFT: PERVERSIVE ASTHMA MONITORING FOR CHILDREN. RIGHT: PATIENT INTERACTIVE COMMUNICATION & LEARNING SYSTEM



Being sick is no fun. While confined in a hospital bed, a patient may feel overwhelmed and alone. The Patient Interactive Communication and Learning System (PILS) simplifies the patient’s hospital communication experience by combining communication tools into one easy-to-use system mounted on the patient bed (Figure 1 right) to connect to nurse’s video phone, family video conferencing, educational video, entertainment media, and vital signs information (Fischer 2006).

**FIGURE 2.** LEFT: ENERGY PUPPET. RIGHT: PIANO TOUCH



Or consider energy awareness –The Energy Puppet (Abdelmohsen 2008) is an ambient display device that provides peripheral awareness of energy consumption for individual home appliances. The puppet would raise its “arms” in victory to display normal consumption rate (Figure 2 left), or its “eyes” would change color to red and “roar” to warn the homeowners when the specific appliance reaches high consumption rates.

Too busy and can’t find time to practice piano? The Piano Touch (Huang 2007) is a glove with vibration electronics for passive learning of music anytime anywhere. It also shows potential for engaging, pervasive hand rehabilitation used alone or playing on a lighted keyboard (Figure 2 right).

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