

SleepCompete is a bedside device aimed at children to encourage healthy sleeping habits. Children and parents are able to monitor sleeping habits using a 'sleep score'. By sharing this score with selected friends we propose that SleepCompete will persuade it's users to improve their sleeping habits.



Figure 1: SleepCompete Prototype

SleepCompete.

A Smart Bedside Device to Promote Healthy Sleeping Habits in Children

Technical Setup

- Prototype (Fig. 1) with Microsoft gadgeteer (Fig. 2)
- Sensors and actuators: LED Matrix module, PIR sensor, accelerometer, Wi-Fi module, LCD touch display

Pretests and Implementation

- Pretests established a correlation between sensor readings and sleeper's movements (i.e., rolling over) (Fig. 3)
- We implemented testing between two SleepCompete prototypes using non colocated synchronous sleepers

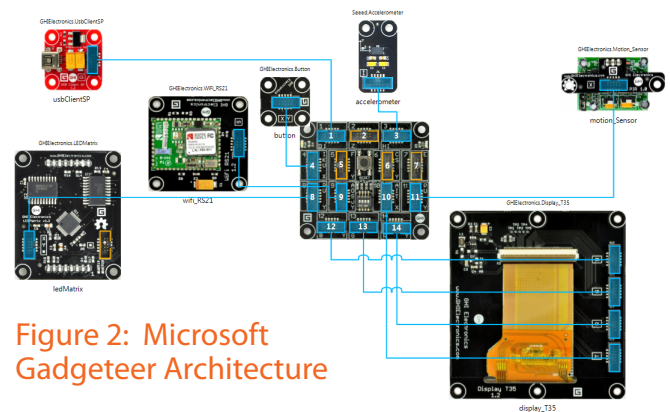


Figure 2: Microsoft Gadgeteer Architecture

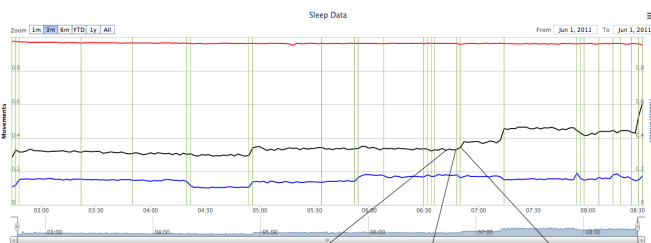


Figure 3: Movement Tracked by Sensors



Functionality

- Assumption based on pre-test: sleeper's movement is directly related to quality of sleep
- Monitoring sleeper's movements during the night
- Points are allocated during phases of 'sleeping soundly' and instantly displayed on the LED matrix
- Friends compete by comparing 'sleep scores': sleep data is sent to a web server and relayed to friend's LCD display
- Long term tracking of sleep behaviours is facilitated using the interface of the parental analytical portal (Fig. 4)



Figure 4: Parental Analytical Portal