

Sleep and Health Analytics Embedded

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The goal of our project is to create a wristband that will provide information about the user's health. Our wristband will provide movement data as well as heart rate information, which will be used to analyze the activity of the user. A stretch goal for the project will be to integrate the watch with some sort of alarm system. This could include a vibration feature, which will wake up the user when they begin to exit REM sleep. A LCD screen could also be attached to allow the user to view their heart rate without the use of a phone. Another stretch goal could be to visualize the user's heart rate in an application, in order to emulate the output of an ekg. Lastly, we think it would be interesting to use the accelerometer to communicate with another embedded system within the user's environment, for example: allow the user to silence an alarm or manipulate lights by performing specific motions.

The wristband will contain an accelerometer, a heart rate monitor, and a Bluetooth transceiver. Using both the accelerometer and heart rate monitor data, we will provide analytics about the quality of the user's rest and exercise. The Bluetooth transceiver will upload this data to a phone. The phone will backup the data on a server as well provide the user information about gains in their overall health.