TEST PLAN

Smart Band

By

Project Team:
Tom Ou Yang
Farah Ferdous Ishita
Peter Le
Ashton Novak-Louie
Gifty Quansah

Prepared for:
Dr. Andrew Rawicz
Steven Whitmore
Simon Fraser University
School of Engineering Science

Group # 13

Our test plans consists of software and hardware testing.

We have included the two sections of the test cases in the tables below:

Software System Test Plan	Test Input	Expected Output
Expected normal body state	The sensor values are required to be within the acceptable range	The emergency alert is not expected to be triggered
Unexpected heart rate condition	The optical heart rate sensor will be required to be within an acceptable range	• Activation of an emergency alert immediately • A quick information regarding the heart rate will be highlighted on the display screen
Abnormal body temperature condition	The body/skin temperature sensor will be required to be within a valid range (-10 degree to 40 degree Celsius)	• Emergency alert should be activated immediately • Temperature information should be displayed on the display screen
Altitude range	Operating altitude range should be within a range of -300 m to 4877 meter	• Any sort of device movement should be detected successfully within this range

Software System Test Plan (Continued)	Test Input	Expected Output
Fall detection	The readings from the accelerometer should indicate that a fall has occurred. Moreover, the accelerometer readings are required to match a pattern defined by the fall detection algorithm.	• Emergency alert is required to be activated • Severity of fall and heart rate information should be detected • Differentiation between fall and normal hand and limb movement will be required to avoid false alarm
SMS	Emergency alert will be detected	• SMS will be sent to an emergency contact during the time of an emergency
Acceleration of device	Acceleration values are continuously fed to the mobile application	• The maximum sample rate of the accelerometer is required to be 62 Hz for allowing linear approximation to be of sufficient accuracy

Hardware System Test Plan	Test Input	Expected Output
Heart rate sensor capture correct data	Sensor is able to detect heart pulse rate in the form electrical signal	Heart rate sensor data transmitted via BLE to be processed. Processed data Displayed on smart band
BLE communication	Smart band is able to communicate with app on mobile phone via Bluetooth.	-All sensor data transmitted to mobile App -Processed data transmitted to smart band -In the case of an emergency, SMS will be sent to contact.
Temperature sensor	Sensor is able to detect temperatures in the range 14 to 104 °F with a response time of 20seconds	Temperature sensor data transmitted via BLE to be processed. Processed data Displayed on smart band
Battery life	-Battery is able to charge fully within 1.5 hours -battery is able to last 48 hours for normal use.	- Battery is able to last 48 hours for normal use - Additional functionality such GPS impacts battery performance