Requirements

This section of the document outlines the overall requirements for the project and uses MoSCoW (Must have, Should have, Could have, Won’t have) prioritization. They are split into two sections functional and non-functional for each element of the product.

Note requirement numbers are labled in the following way –

X1.X2.X3

1 . Functional (1) or Non-Functional (2)

2 . Component, Android application (1) or Hardware device (2) or Database (3)

3 . Requirement number

## Android app

Requirements for the android application portion of the product are as follows -

Functional

|  |  |  |
| --- | --- | --- |
| Requirement # | Requirement description | Category |
| 1.1.1 | App boots in android | Must have |
| 1.1.2 | App has network functionality | Must have |
| 1.1.3 | App has Bluetooth functionality | Must have |
| 1.1.4 | App retries dropped network attempts | Should have |
| 1.1.5 | App retries unsuccessful Bluetooth communication | Should have |
| 1.1.6 | App should set notification in database | Must have |
| 1.1.7 | App should receive notification from database | Must have |
| 1.1.8 | App should create new user | Should have |
| 1.1.9 | App should have function to silence device | Should have |

Non-Functional

|  |  |  |
| --- | --- | --- |
| Requirement # | Requirement description | Category |
| 2.1.1 | App should communicate over wide area network | Must have |
| 2.1.2 | App should communicate over a personal area network | Must have |
| 2.1.3 | App should perform notification in a timely manner (>10s) | Should have |
| 2.1.4 | App development should be low cost | Should have |
| 2.1.5 | App should perform its own housekeeping | Should have |

## Haptic Powerband

Requirements for the powerband hardware are as follows -

Functional

|  |  |  |
| --- | --- | --- |
| Requirement # | Requirement description | Category |
| 1.2.1 | Device should power to a ready state automatically | Must have |
| 1.2.2 | Device should get to a pairable state from first boot automatically | Must have |
| 1.2.3 | Device should retry connections if dropped | Should have |
| 1.2.4 | Device should pair to android app | Must have |
| 1.2.5 | Device should receive notification from app | Must have |
| 1.2.6 | Device should vibrate upon notification receipt | Must have |
| 1.2.7 | Device should send confirmation of vibration | Should have |
| 1.2.8 | Device should have a way to silence notifications | Could have |
| 1.2.9 | Device should provide differentiation between reasons for notification via haptic feedback (intensity and/or duration of pulse) | Could have |
| 1.2.10 | Device should have a visual representation for reason of notification (RGB light or display) | Could have |

Non-Functional

|  |  |  |
| --- | --- | --- |
| Requirement # | Requirement description | Category |
| 2.2.1 | Device must provide primary notification to the use alone (discretion) | Must have |
| 2.2.2 | Device must provide long service life without user input | Should have |
| 2.2.3 | Device must have physical attributes to enable comfortable wearing/use | Must have |
| 2.2.4 | Device should be of near disposable cost (>£10) | Must have |
| 2.2.5 | Device should provide a widespread method to connect to an internet enabled device (Bluetooth) | Must have |
| 2.2.6 | Device must work over a reasonable range between it and internet enabled device | Must have |
| 2.2.7 | Device must serve notifications in a timely manor (>10s) | Must have |

## Database

Requirements for the database are as follows –

Functional

|  |  |  |
| --- | --- | --- |
| Requirement # | Requirement description | Category |
| 1.3.1 | Database must store users powerband contact details | Must have |
| 1.3.2 | Database must be accessible remotely | Must have |
| 1.3.3 | Database must have security against unauthorized access | Must have |
| 1.3.4 | Database must store a unique value for each user | Must have |

Non-Functional

|  |  |  |
| --- | --- | --- |
| Requirement # | Requirement description | Category |
| 2.3.1 | Database must run on common hardware | Must have |
| 2.3.2 | Database must run without huge computational/power draw | Must have |
| 2.3.3 | Database must use a compatible interface language | Must have |
| 2.3.4 | Database must update in a timely manner (>10s) | Must have |