

## Lone Worker 2.0 - User Manual

### Functional Overview

The Lone Worker Product v2.0 is fundamentally a safety / emergency device worn by people who travel in vehicles to remote areas where mobile and other network coverage is non-existent or unreliable.

The system essentially provides a reliable 'link' between the user and the vehicle to ensure that should the person get into difficulty, for example by having a fall, that a message is communicated back to the vehicle and then further back to some back-end system.

There are 2 main components of the system being a Remote (worn by the user) and an Antenna Module that is mounted on the inside of the vehicle windscreen. Communication between the Remote and the Antenna is via LoRa RF using the appropriate ISM frequency band for the countries in which it is licensed.

The person wears the Remote device in a belt clip and this connects wirelessly to an Antenna Module in the vehicle and maintains an ongoing connection between the two. This ensures that the system always knows whether a user is in-range or out of range and can take necessary remedial action depending on business rules built into the system.

The Remote user interface is kept deliberately simple with a single, large button, an RGB LED, Speaker and Vibrator.

The Antenna module has an Open API via its UART (serial port) to communicate with a variety of back end systems to both provide information and emergency events to the back-end, or for the back-end to send emergency events back to the user.

### Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following:

- 1) This device may not cause interference; and
- 2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

## Modification Warning

*Warning: Any changes or modifications not expressively approved by Imaginastix Pty Ltd, could void the user's authority to operate this equipment.*

## Key Features

### Out of Range

If the user goes out of range of the vehicle (antenna module) to which they are 'paired', the Remote will sound specific warning tones and if the user does not return back into range within a specific amount of time, the antenna module will send a serial message to the back-end with an emergency message as well as the last known location of that user.

### Emergency Button pressed

If the user is conscious, encounters an emergency event and requires assistance, they can press and hold the button for > 1 second. The remote will sound certain unique tones after which it will send a duress signal (including GPS location) to the antenna module and then provide audible and vibration feedback to the user once the signal has been acknowledged and an acknowledgement message sent back to the Remote via the Antenna module to let the user know that their duress message has been received by the back-end system.

### User Check-in

This function is actioned by the user double-clicking the Remote button, after which a 'check-in' message is sent to the Antenna module, again including the GPS location. The Antenna module then sends a specific check-in message via its UART to whatever back-end system it is connected to. Typically, the back-end system will then provide a UART message back to the Antenna module to reply and acknowledge receipt of the check-in back to the Remote. The Remote will then sound specific acknowledgment tones to let the user know that their message has been received.

### Fall-over Event

The Remote has a built in Gyro and Accelerometer and based on specific software algorithms, it can sense a fall-over event. If this is triggered, specific audio tones are generated by the Remote to alert that a fall-over event has been actioned and if they don't respond within a specified timeframe, that a duress message will be sent. If the user is conscious and okay, they can press the button to cancel the message. If, however they are not okay or are not conscious, the Remote will send the duress message to the Antenna module including the GPS location of the user. As per the other scenarios, the Antenna has the ability

to send an acknowledgement of receipt message back the user's Remote with the appropriate tones and vibration.

#### Outbound Alert

The Antenna module has a defined UART command to send an outbound emergency alert to a user from the vehicle. Typical scenario might be vehicles and users in an area that is under fire threat. The back-end system can send messages via the vehicle Antenna modules to their connected Remote users and the Remote will sound an alarm alert in an attempt to provide users with early knowledge of a threat and the ability to evacuate.

#### System Configuration

Both the Remote and Antenna modules both have in-built Bluetooth 4.0. This allows an administrator with the appropriate privileges, to view certain information and configure various parameters of the system including G-force and other timing parameters for fall-over trigger, check and update firmware, battery level, temperature and the like. This also allows retrieval of log information recorded in the Remote, perhaps after an event.