



Test Plan for AlarmSense System

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Test Plan

Test 1

Test Name	Manual alarm change through mobile app
Purpose	Check the standard operation of the mobile application
Steps	<ol style="list-style-type: none">1. Connect the app to the unit via Bluetooth2. Manually type in a new alarm frequency from the standard available frequencies3. Play an alarm of that frequency in the background
Expected Result	User will be notified when an alarm of that frequency is ringing

Test 2

Test Name	Automatic alarm change through mobile app
Purpose	Check the alarm detection of the mobile application
Steps	<ol style="list-style-type: none">1. Connect the app to the unit via Bluetooth2. Set an alarm frequency using the alarm detection feature of the app3. Play an alarm of that frequency in the background
Expected Result	User will be notified when an alarm of that frequency is ringing

Test 3

Test Name	Alarm detection
Purpose	Check the standard operation of the alarm detection system
Steps	<ol style="list-style-type: none">1. Play alarm noise through external speakers2. Put ambient noise microphone beside the alarm3. Listen to audio output from primary microcontroller through headphones
Expected Result	Hear alarm through headphones attached to the primary microcontroller

Test 4

Test Name	Multiple alarm frequency detection
Purpose	Check that the system accepts multiple frequencies from the app
Steps	<ol style="list-style-type: none">1. Connect the app to the unit via Bluetooth2. Manually type in two alarm frequencies separated by a comma3. Play an alarm of the first frequency4. Play an alarm of the second frequency
Expected Result	User will be notified of the alarm with higher priority if both are at the same time. User will be notified of each alarm if they go off separately. Priority of alarm to be indicated by the frequency of the beeps passed through the headphones

Test 5

Test Name	Alarm detection with ambient noise
Purpose	Check the operation of the alarm detection system in the environment it will be used in.
Steps	<ol style="list-style-type: none">1. Play industrial soundtrack at reasonably loud levels through external speakers2. Play alarm noise through external speakers3. Listen to audio output from primary microcontroller through headphones
Expected Result	Hear alarm through headphones attached to the primary microcontroller

Test 6

Test Name	Wireless speech transmission
Purpose	Check that speech can be transmitted without pushing a button
Steps	<ol style="list-style-type: none">1. Play industrial soundtrack at reasonably loud levels through external speakers2. Speak into microphone attached to secondary microcontroller3. Listen to audio output from primary microcontroller through headphones
Expected Result	Hear clean speech with minimal background noise through headphones attached to the primary microcontroller

Test 7

Test Name	Wireless speech transmission and alarm detection
Purpose	Check that alarms can be detected and speech can be overlaid to allow for communication in emergency situations
Steps	<ol style="list-style-type: none">1. Play alarm noise through external speakers2. Speak into microphone attached to secondary microcontroller3. Listen to audio output from primary microcontroller through headphones
Expected Result	Hear clean speech with minimal background noise, and clearly hear the alarm

Test 8

Test Name	Wireless speech transmission with proximity filter
Purpose	Test volume-based proximity filter
Steps	<ol style="list-style-type: none">1. Speak softly into microphone attached to secondary microcontroller2. Increase the distance between the two units to over 100m3. Speak softly again4. Speak loudly, over 75dB
Expected Result	Hear speech through the primary microcontroller when the two units are close together, hear nothing when the units are far apart and speech is quiet, and hear the speech when the units are far apart and the speech is loud