

UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ

MAYAGÜEZ, PUERTO RICO

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING



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# WaveSphere: Progress Report #4

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A PROGRESS REPORT SUBMITTED AS A PARTIAL REQUIREMENT OF THE  
MICROPROCESSOR INTERFACING COURSE ICOM-5217

by

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# 1. Hardware Components

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A table showing a list of the system features and expected functionality along with a blank field for annotations follows. The features are divided by the operating modes of the systems so that they are easier to follow.

Table 1: List of System Features and Functionality

Main
<ul style="list-style-type: none"><li>• Power on System with RF module</li></ul>
Professor Annotations
Status Mode
<ul style="list-style-type: none"><li>• Display SD Card Free Space on GUI</li><li>• Display Battery Level on GUI</li><li>• Display Drifter ID on GUI</li><li>• Allow users to switch between any of the other operating modes</li></ul>
Professor Annotations
Diagnostic Mode
<ul style="list-style-type: none"><li>• Display raw sensor measurements on GUI</li><li>• Display GPS location on GUI if available</li><li>• Display Battery Level on GUI</li></ul>
Professor Annotations
Sampling Mode
<ul style="list-style-type: none"><li>• Collect Data from three sensors: Accelerometer, Magnetometer and Gyroscope</li><li>• Sample at a frequency of 256Hz for a sampling window of 30 seconds</li><li>• Write Data to SD card</li></ul>
Professor Annotations
Location Mode
<ul style="list-style-type: none"><li>• Get data from GPS and send it through XBee</li><li>• Display received location data on GUI until the user exits this mode.</li></ul>

Professor Annotations
Retrieval Mode
<ul style="list-style-type: none"> <li>• Read data from SD card and display on GUI</li> <li>• Wirelessly transfer data from SD card to the GUI through the XBee</li> <li>• Erase data from SD card.</li> </ul>
Professor Annotations
Shut Down Mode
<ul style="list-style-type: none"> <li>• Shut down all components and send MCU to low power mode</li> </ul>
Professor Annotations