

UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ

MAYAGÜEZ, PUERTO RICO

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING



WaveSphere: Progress Report #5

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

by

Adrián Ildefonso - Project Leader

Daniel Santiago

Nelián Colón

Samuel Rodríguez

For: Dr. M. Jiménez

Course: ICOM 5217, Section 088

Date: April 26, 2013

1. System Features and Functionality

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">• Power on System with RF module
Professor Annotations
Status Mode
<ul style="list-style-type: none">• Display SD Card Free Space on GUI• Display Battery Level on GUI• Display Drifter ID on GUI• Allow users to switch between any of the other operating modes
Professor Annotations
Diagnostic Mode
<ul style="list-style-type: none">• Display raw sensor measurements on GUI• Display GPS location on GUI if available• Display Battery Level on GUI
Professor Annotations
Sampling Mode
<ul style="list-style-type: none">• Collect Data from three sensors: Accelerometer, Magnetometer and Gyroscope• Sample at a frequency of 250Hz for a sampling window of 30 seconds• Write Data to SD card
Professor Annotations
Location Mode
<ul style="list-style-type: none">• Get data from GPS and send it through XBee• Display received location data on GUI until the user exits this mode.

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