Team meeting with Gary Woods

Notes by Robyn Torregrosa

* Weekly project management meeting, generally have notes or something visual prepped to show on screen
* Updates:
  + We met with sponsors
  + Not many definite specs- but those might come from FLOOD team
  + Gary: team needs to tell Gene what the specs are
  + More generic we make it, more time to abstract it away
* Questions about starting
  + Brady: different from ENGI 120- start by defining project (read papers)
  + Gar Rec: what is the state of the art? -- we don’t know, so on to Google
    - Commercially, what exists
    - Jen: Nothing matches what Gene wants- hook up any power source, and use wireless to stream data
  + Collects data and sends to aggregator
    - Up to us to decide tradeoff with processing
  + Action item: decide upon some specs for what we CAN do and what we MUST do
  + Let’s whiteboard some stuff?
  + Brady: minimally programmable (so you only need to add in a sensor and its features)
    - Do we want it to be able to do lots of other cool things in the features
  + Gary: might need to put in hefty microprocessor so you can use it later
  + msp 430? Make a Pew Matrix to justify choice: small, team familiar,
    - Cons: memory, filtering with mat. Mult./ DSP
  + Research, then brainstorming, then pew matrix
  + Big decision: which microcontroller to use?
    - Msp 430, feather (bluetooth module incl- will bluetooth meet the range requirements?)
  + Wireless piece: LORA (will it have dedicated microcontroller?, con: antenna is huge)
  + Goal: “pinless”
    - Dedicated transceiver with microcontroller to manage rf link
  + We are building a standalone device, but if it integrates with FLOOD that would be nice for their next gen product
  + Determine the range
* Need to show progress by next week
  + Make a “big dent” in research
    - Market gap, what is technically possible
* What flood needs:
  + Currently using pressure sensor, req 5V or 3.3-3.7 if that help
  + Burns a few 10ths of mA
  + Feeds analog voltage 0 to 3.3V range
  + Digitize
  + Send enable to sensor to put in sleep mode
* Propose: 1 wk research, 2nd wk have design specs/ constraints, 3rd wk documentation done for Sept 28 deadline
* Change: meeting on Wednesdays @ 9am
* System design approach- specs on specs on specs
* Deliverables: progress on research (what is the state of the art for IoT devices- not as much about the size, people focusing on the cloud or arch for specific applications like wireless communication rather than sensor nodes), look at different wireless comm. Options (LORA, cellular, wifi) for outdoor space, block diagrams(?), division into teams, rough draft of pew matrices (2nd wk)

Post-Woods Meeting

Divvying up the research

Power- Brady, Rachel

* Storage
* Generation
* Control

Processor-

* Microcontroller- Jen, Robyn
* Comms- Robby

Sensor-

* Interface/ Type
  + Potentially show that you can generalize to different interface
* Data Manipulation/use- Robyn
* Power

Software- Nathaniel

* Communication schemes- Robby, Nathaniel
* Encryption (optional)- potentially it goes unencrypted to the aggregator
* SW/ Firmware integration

Preference: C rather than arduino

Friday 2pm team meetings

Team Roles

Logistics- Robyn

Flood team Comm- Rachel

Prep & Lead meetings- Brady

Prep Progress Reports- Jen

Bonding- Brady, Robby