

Minutes

Location: Shed

Date: Tuesday 3rd October

Not In Attendance: N/A

Attendance: Daniel Knox, Daniel Carl Beauchamp, Dharius Robinson, Natalie McLaren

What's Been Done since the Previous Meeting:

N/A

Topics discussed:

- **ConOps:**
 - Dan Knox - We need to come up with scenarios from the ConOps list - how each user would interact with it i.e. when its first being installed by a maintenance person. If it functions, what should we expect from it.
 - Dan Knox going over our ConOps list:
 - Re:point 5 'environment in which system is set in':
 - obstacles with building street level as things will get in the way of data being sent/signal will get weaker. The ground itself might get in the way unless sensor is high up.
 - Regarding large areas and lakes - works well for antennas but in the middle of nowhere. Plus trees can also interfere when sending data.
- **Lego model:**
 - We emphasise our interest in creating a model as well as getting the system to work with the sensors and data.
- **Database:**
 - Dan Knox suggests we use Influx DB - stores data routinely and focuses on timestamps. Handles data over time.
- **Monitoring:**
 - Dan Knox asks about how the monitoring will work. DCB explains it will be a case if 'if condition is detected then start it up else monitor at a intervals'.
- Daniel B asks what other data gathering projects we can look at for some guidance.
 - Dan Knox suggests the Oxford Flood Network project.
 - Uses ultrasonics
 - Repo online: <https://github.com/oxfloodnet>
- Dan Knox asks whether we are looking to just be making API requests or whether we'll be wanting some actuators based on data received?

- Dan Knox talks about getting I.P ratings - the first number represents water, and the second dust.
- Dan Knox suggests we look into the environmental agency and how they collect water levels etc.
 - Re:point 6 boundaries of the system - the point about recharging/replacing batteries:
 - Could check internally whether its time to replace or not.
- Dan Knox emphasises “communication is going to be a big issue” - between sensor due to signals in town.
- **Brainstorm based on this meeting/things to do:**
 - Functional Requirements:
 - High Level
 - Nest down to lower levels
 - List components that will work to achieve these requirements
 - Write usage scenarios
 - High overview design
 - Technology and hardware to be used?:
 - Radio based?
 - Will be slow or interrupted in building and street areas (radio waves work on line of sight - can't go through the ground)
 - Add extra relays that are higher up?
 - GSM networks?
 - Rivers are not likely to have GSM networks to use
 - Different types of sensors for different locations?
 - Consumption of data
 - Use of API that is requested?
 - Solar?
 - Shower proof? Or higher waterproofing (IP rating cases)
 - Methods of Anomaly detection
 - Compare individual reading against the mass to decide if it should be ignored
 - Use Environmental agency water level readings (we can query this)
 - Send battery level with data readings?
 - InfluxDB (Focused on timestamps data)
 - Good for handling data over time
 - E.g. Keep values for once per minute for the next two weeks.
 - Look at existing “Oxford flood network project” to get an idea of how other solutions have been achieved.

What's Being Done:

For next meeting on Tuesday - agreed to have scenarios ready along with functional requirements.

Further Discussion: