

Flash-IOT

Weekly Team Meeting 09/19

19 SEPTEMBER 2019 / 2:30 PM / ISGC Conference Room

ATTENDEES

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AGENDA

- Specific the project
- Discussion of the PCB modules
- Submit the draft budget
- Client Q&A

NOTES

- Specific the project:
 - Components of OWC sensor node:
 - Sensors(Humidity, Temperature, Human Sensor, etc.)
 - LED Driver(Transistor to switch LED on and off)
 - Photodiode
 - Coin battery(Supply power)
 - Components of OWC sensor hub:
 - There are several design methods in order of design complexity:
 1. Use a Microcontroller(Raspberry PI, Arduino) to control a photodiode as a receiver and a LED as a transmitter.
 2. Use a Microcontroller(Raspberry PI) to control a camera sensor as a receiver..
 3. Use a phone to implement the system(Camera acts as a receiver and Flash acts as a transmitter which requires modulation of Flash).
 - Algorithm for different design methods:

- For method 1: OWC sensor node enable receiver in a period(ex: every 10 minutes) to check the signal from the hub as well as name tag. If the hub is calling the node, the node will send back the sensors' data. OWC hub need to continue to call the node until get a reply. This method needs to design complex hand shaking.
 - For method 2 and three: OWC sensor hub broadcasts required node's information and the node send back the data. Due to using a camera(array), it is available to receive multiple sensors's data in short delay.
 - For both methods, it is necessary to design the modulation(ID tag bit, acknowledge bit, parity bit,etc.)
 - Power Consumption Requirements:
 - Node need to be powered by battery so that it can be deployed.
 - Hub can be powered by an outlet of a computer.:
 - LED & Photodiode Requirements:
 - Choosing LED and Photodiode needs to consider field of view and effective distance. They can be found in the datasheet. Incorrect field of view can cause alignment issues(Node cannot receive the signal).
- Discussion of the PCB modules :
 - We can buy modules to connect with a microcontroller(put everything together compactly using glues)for our prototype.
 - We can also design our PCB to build the node.
 - There is no strict restrictions and make it work is the priority. However, it is better to make our design as a product.
- Submit the draft budget: Budget has been submitted according to a rough draft of the design.
- Client Q&A: Client Q&A is listed in a separate file.

ACTION ITEMS

1. Have a brainstorming about the algorithm in next Tuesday's meeting.
2. Generate a rough plan of the system.
3. Make schedule based on the rough plan.
4. Discuss our rough plan with our client in next Thursday's meeting.

