

## EE / CprE / SE 492 – SdDec21-20

### IoT Smart Lights

### Bi-weekly Report

09/14 – 09/28

Client: Dr. Manimaran Govindarasu

Faculty Advisor: Dr. Gelli Ravikumar

#### Team Members:

Hamza Mostafa Sayed Mahmoud	habdul@iastate.edu	Hardware Design
William Gavins	wpgavins@iastate.edu	Hardware Design
Xinlei Yu	xinleiyu@iastate.edu	Software Design
Nathan Orts	njorts@iastate.edu	Software Design

#### Summary:

- Worked on interoperable system design and learned PCB design.
- Continued work on XBee2 software for coordinator to endpoints

#### Past Week Accomplishments

- Started development on the front-facing software app using Django.
- Updated Gantt chart timeline.
- Identified some pitfalls to avoid.

#### Pending Issues

- Hardware Scripting Serial Programming for Remote lights and coordinator
  - Remote GPIO button triggers
  - Packet frame generation for interfacing with remote lights on the coordinator
    - Specifically: checksums, occasionally packets from remote lights will get thrown out, working on finding a cause.
- Hardware PCB Design and Schematic
  - Add charging Circuit to schematic
  - Find a source for tp4056 IC or an alternative(MCP 73831) power charging module.
  - Break up PCB into prototypes such that the first iteration may skip charging circuitry while we find a source for parts.
- Software side

- Added Python functions create\_connection(path) #create and connect local sql database to store simulation getInfo() # basic read simulation file etc.
- Modified Python functions Flick() and Status()
- Actual GUI with specified functionality.

### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
William Gavins	Continued working on Xbee2 scripting software to make interfacing with hardware easier.	7	15
Hamza Mostafa Sayed Mahmoud	Reached out to the ETG Ordered parts for testing circuit Designed circuit power source alternator	7	10
Xinlei Yu	Python app development - Software/Hardware interfacing.	7	11
Nathan Orts	Python app development - GUI	8	13

### Plans for Coming Week

- Nathan - Continue GUI development.
  - Learn more Django.
  - Learn more HTML.
- Xinlei
  - Looking forward to integrating with UI Build functions to better support simulation outputs and decoding the files Working on interacting Xbee interface (interface.py)
- Hamza - Debug, prototype, and finish the battery charging subsystem. Designing and implementing the power source alternator
- William- Make final hardware changes, implement changes to PCB, and correct bugs and expand features in XBee endpoint to coordinator subsystem