Present: Mack Hall, Jorian Bruslind, and Zach Bendt

Absent: N/A

ECE 342

2/7/19

Guidance Meeting 2 Notes

* Since last meeting, 2nd PCB revision now has almost all components mounted/tested
  + Now has mounted ESP32, UART-USB bridge, relays, transistors, and LEDS
    - Able to communicate with app (turn relays on/off) fairly consistently
      * Introduced a new bug that disables communication
        + Troubleshooting is underway
      * Discovered new “quirk” of relays in relation to LEDs
        + Previously “on” position discovered to be “off”
  + Newly ordered stencil makes for much easier assembly
  + Case can be finalized now that more exact dimensions are known
    - * Case has been radically changed since last revision
        + Includes physical cutoff switch on the input plug

Also includes additional, disposable quick-acting 5A fuse

* + - * + Includes additional room to completely enclose transformer
        + Introduces new, sleek design to minimize physical footprint
  + Current 5A fuse has shown to be unreliable
    - Will not stop device from pulling 5A from wall alone
      * Only tripped at 9A after ~15 seconds
        + Wouldn’t trip at 5A even with prolonged exposure
      * Might require lower threshold than 5A for final product
        + Might use in conjunction with current sensors as failsafe
  + Analogue current sensors can now talk to microcontroller
    - Calibrated to deliver accurate current readings
    - Code utilizes a shift register to calculate an average over a short interval
  + I2C voltage and current sensing code is now under development
    - Successful communications between MCU and sensor have taken place
    - More troubleshooting/development is needed
      * Scott may have some experience/be willing to help
  + App and microcontroller can now talk together successfully
    - Able to enable/disable relays via bluetooth with a custom android app
    - Further troubleshooting is needed for app related to switching relays on/off
      * Sometimes randomly loses connection to MCU
  + WiFi communication framework has begun development
    - Will utilize NodeRed servers to update voltage and current values to user
* Next steps
  + Try to fix newly introduced app bugs
  + Try to fix I2C communication between current/voltage sensor and MCU
    - Potentially ask Scott for help
  + Introducing/developing WiFi capabilities
  + Mount/test final components to PCB
  + Stress test mounted components
  + Further revising/printing enclosure
  + Group is pretty far ahead of schedule :D