Preliminary Design Review

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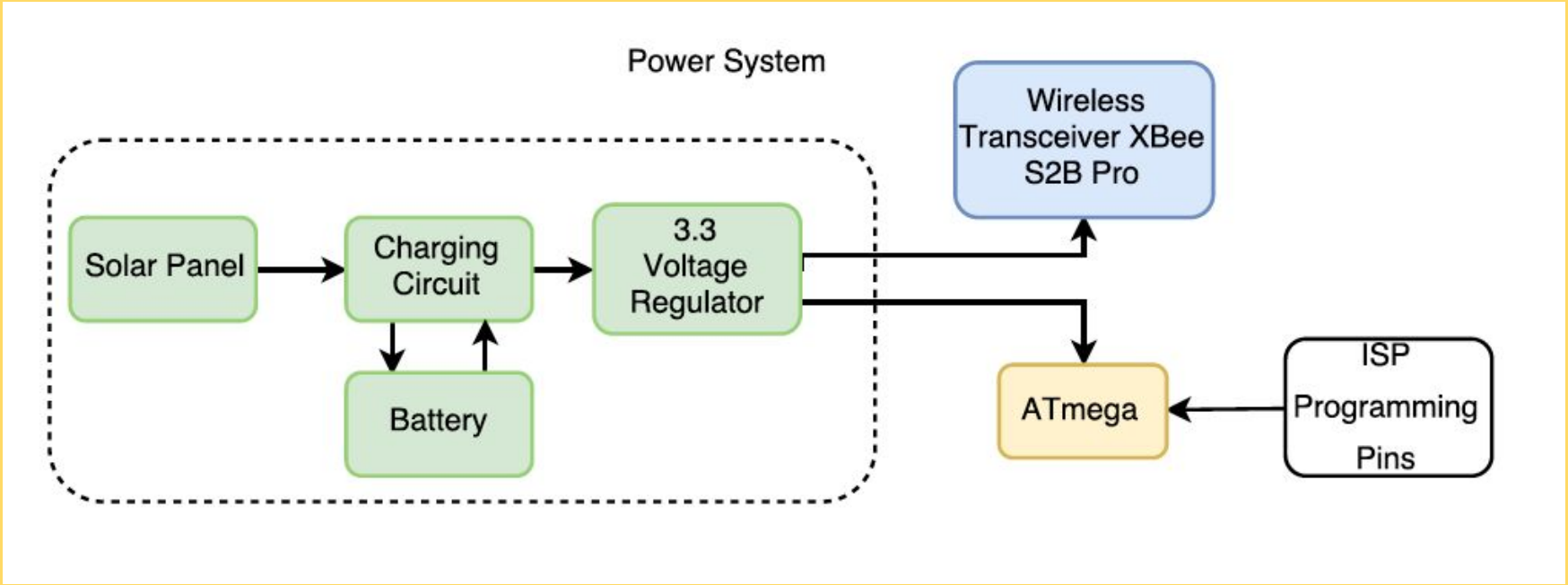
Team Bumblebee
Fall 2019
ENGR 396

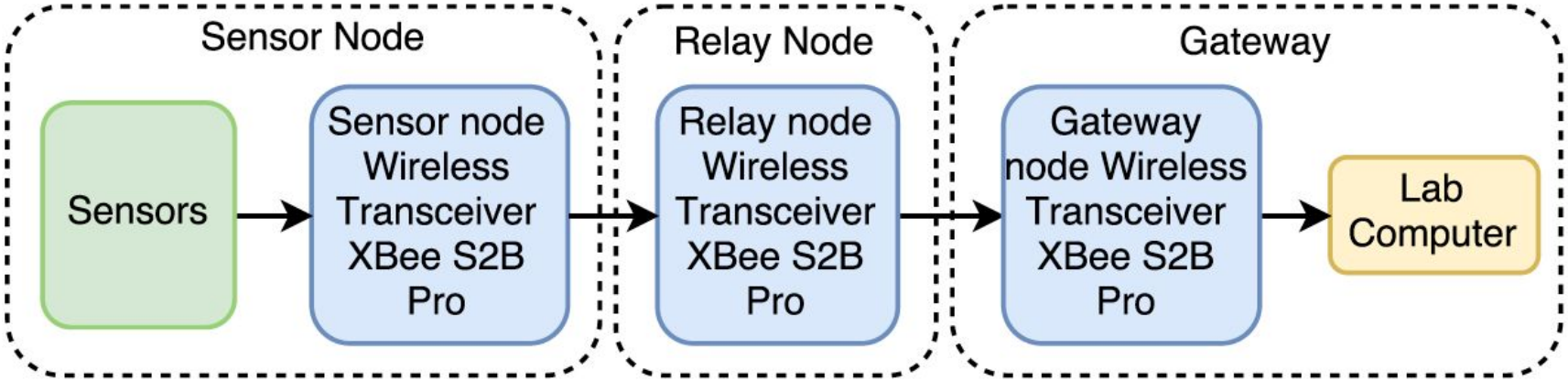
Presentation Overview

- Block Diagrams
  - Power
  - Signal/Communication
- Team Progress
- Schematic
- PCB Design
- Problems, What needs to be done
- Gantt Chart
- Future Goals
- Questions

Power

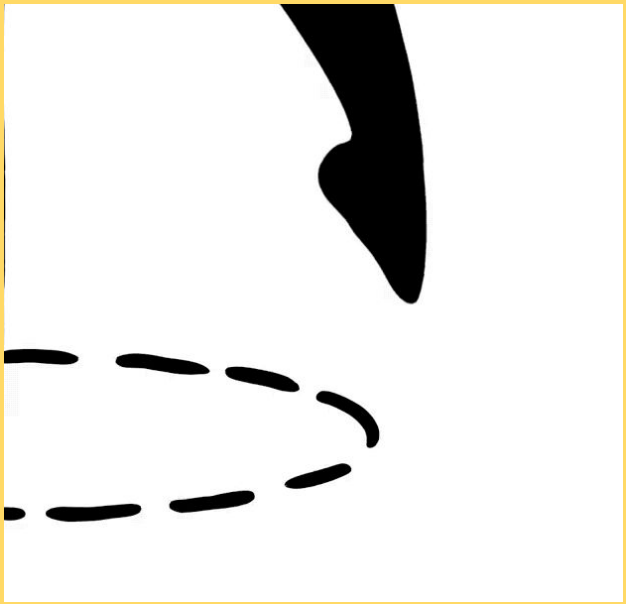

Power System
Solar Panel
Charging Circuit
3.3 Voltage Regulator
Battery
Wireless Transceiver XBee S2B Pro
ATmega
ISP Programming Pins

Signal/Communication

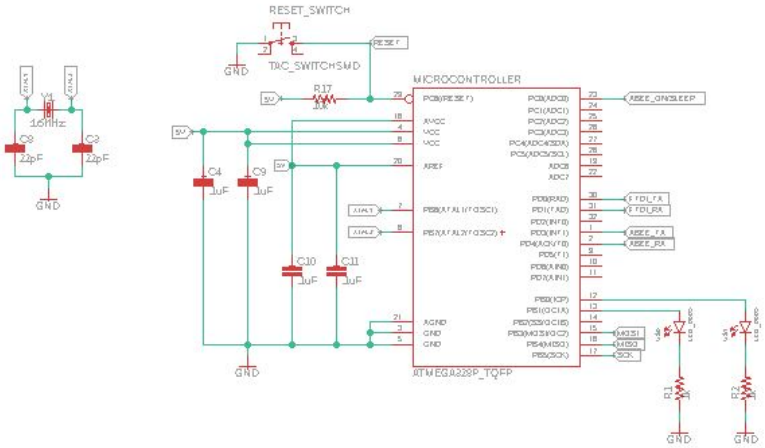


Team Progress

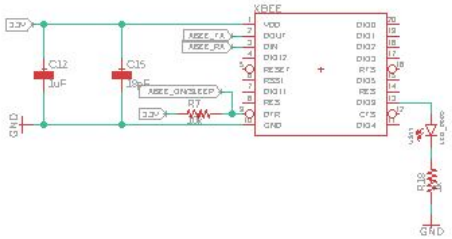
- Gained more information of Bumblebee from past wikis
- Changed voltage regulator part
- Talked with Dr. Kuh



Microcontroller



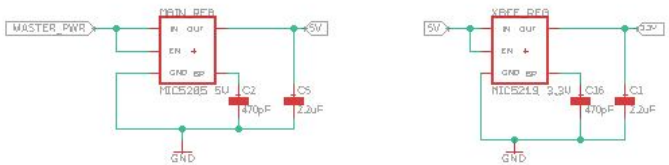
Xbee

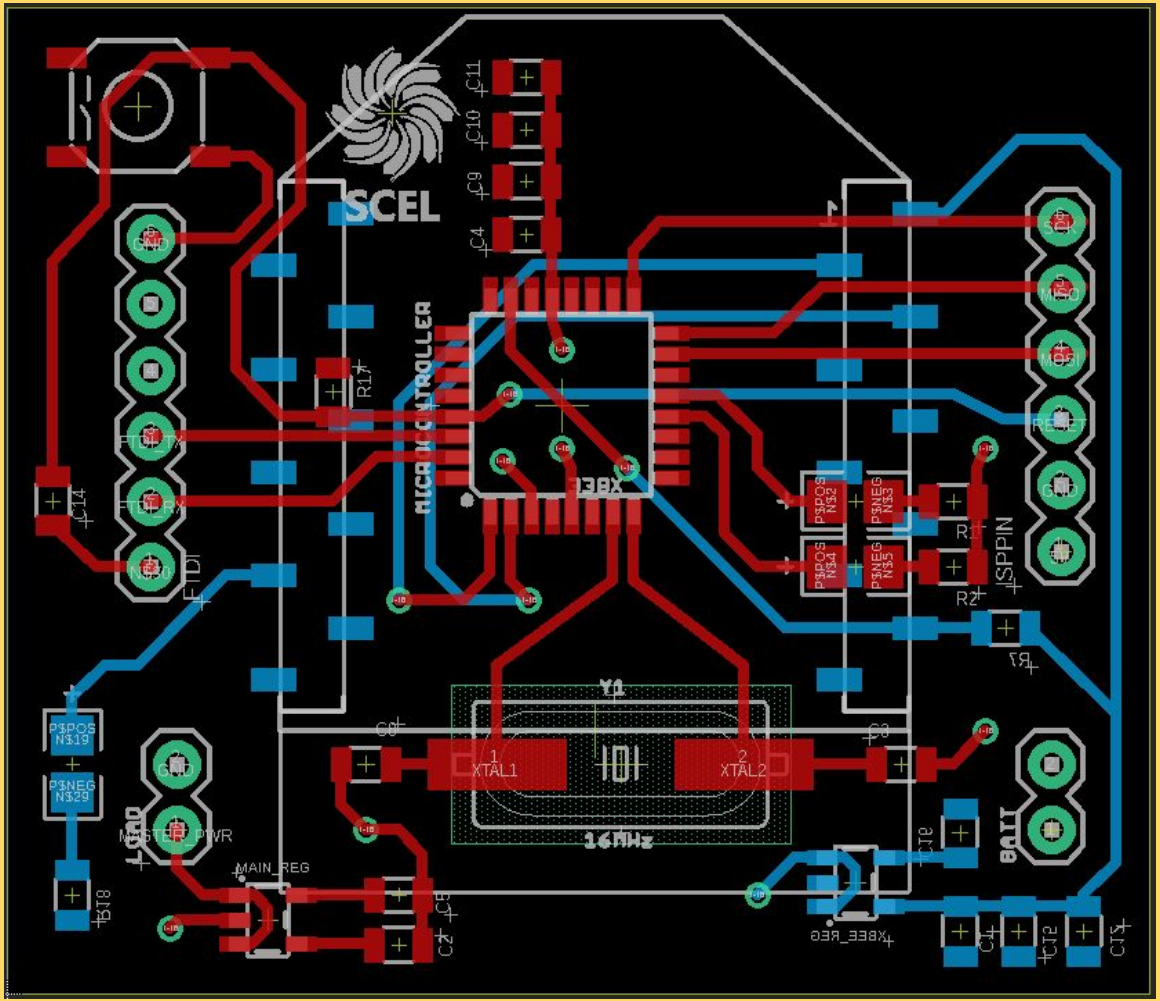


Solar Charger Header

Programming Circuit

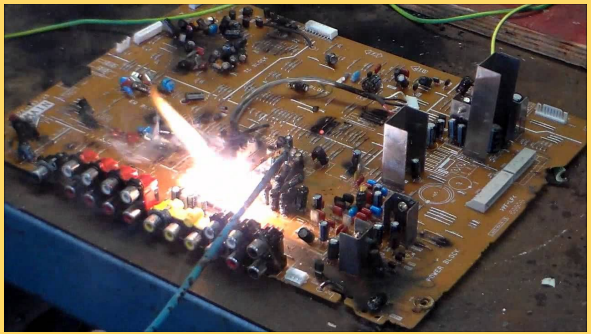
Voltage Reg

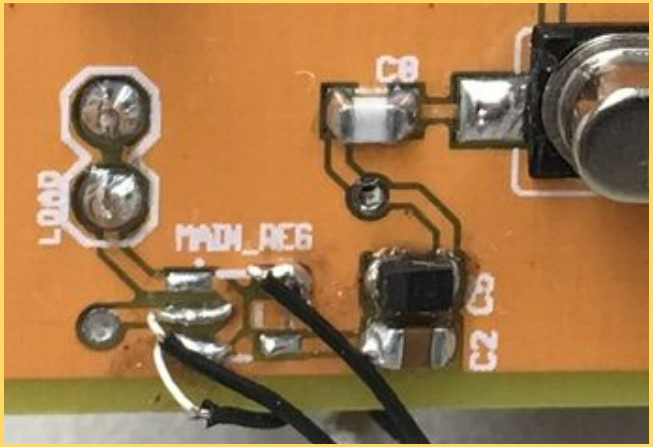



SCEL
MICRO CONTROLLER
328X
FTDI
ISPPIN
BATT
MAIN_REG
XBEE_REG
XTAL1
XTAL2
16MHz

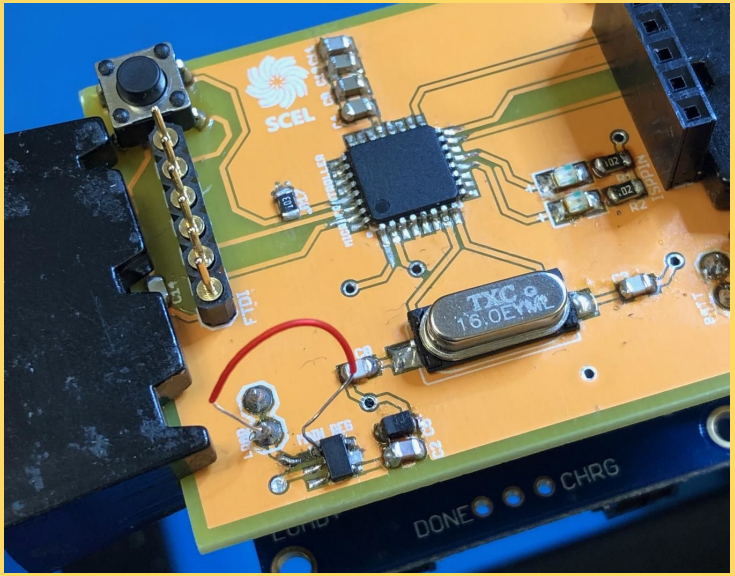
Problems

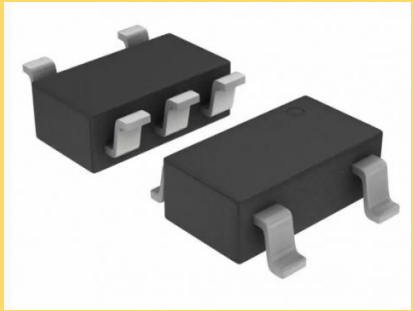
- Trace chipped off
  - Used a wire to replace trace
- Replaced 5V regulator with 5V Boost
  - Plugging in the battery caused the board to start smoking
  - Drained the battery from 4V to 1.7mV in a matter of seconds



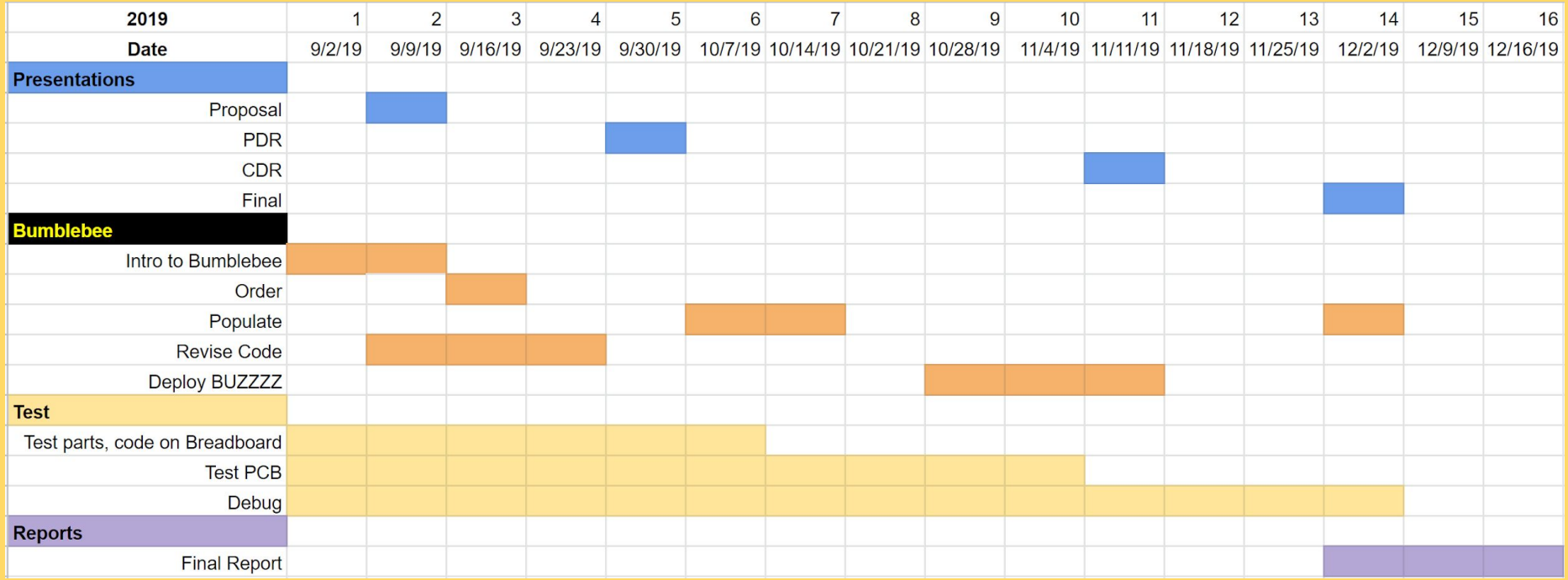

C8
LOAD
MAIN_REG
C2


470


SCEL
TXC
DONE
CHRG



Gantt Chart



2019	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Date	9/2/19	9/9/19	9/16/19	9/23/19	9/30/19	10/7/19	10/14/19	10/21/19	10/28/19	11/4/19	11/11/19	11/18/19	11/25/19	12/2/19	12/9/19	12/16/19
Presentations																
Proposal																
PDR																
CDR																
Final																
Bumblebee																
Intro to Bumblebee																
Order																
Populate																
Revise Code																
Deploy BUZZZZ																
Test																
Test parts, code on Breadboard																
Test PCB																
Debug																
Reports																
Final Report																

Future Goals

- Successfully debug Bumblebee
- Do range testing to see how far apart relays should be placed
- Deploy Bumblebee on roofs
- Listen, look and listen and learn

Questions?