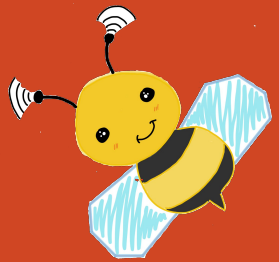
# Proposal Presentation

Team Bumblebee

Spring 2020



# Members

**Sharmaine Ja ier**
EE4 - EP

**M sanao**
- EP

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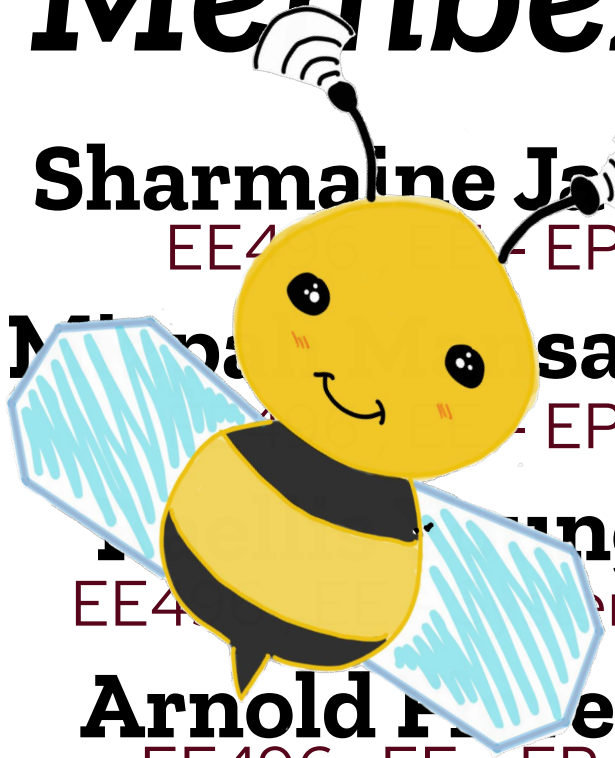
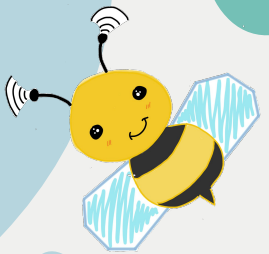
EE4 ems

**Arnold R es**
EE496 , EE - EP



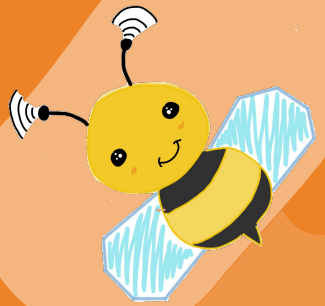
# Presentation Overview

- Motivation
- Project Goals
- Learning Expectation
- Gantt Chart
- Team Progress
- Predicted Problems
- Questions

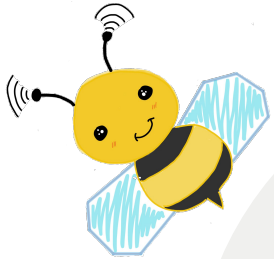


# Motivation/Approach

The Bumblebee Weatherbox is the second generation communications module designed to relay meteorological data collected by the other weatherboxes. Its purpose is to increase the effective range of the weatherboxes.



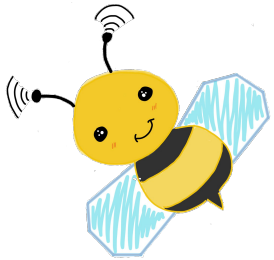
# Project Goals

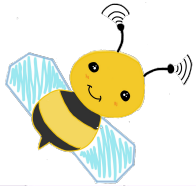


1. Conduct relay testing using Bare Bumblebee
2. Fabricate new PCB incorporating new voltage regulator
3. Research new possible method to relay packets
    a. Raspberry Pi, WiFi
4. *SUCCESSFULLY* deploy a working Bumblebee

# Learning Expectations

- Get a better understanding of Relay code
- Improve technical skills: Soldering, Eagle, Debugging, etc.
- Work together as a group to accomplish tasks on time



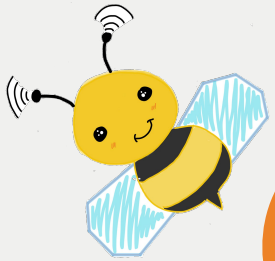


# Gantt Chart

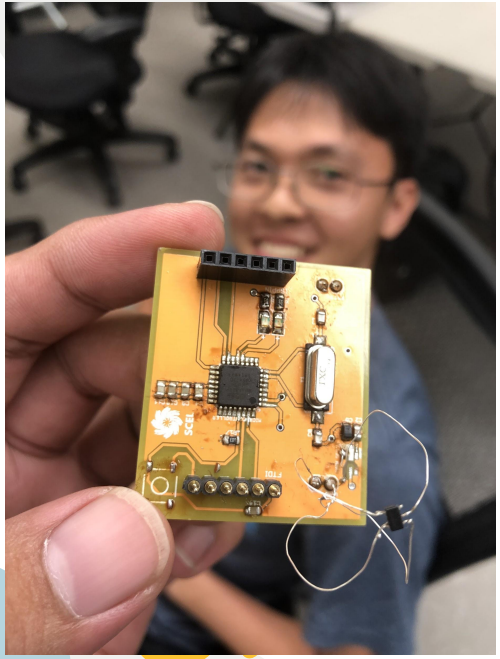
| TEAM BUMBLEBEE | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Spring 2020** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| **Date** | 1/20/20 | 1/27/20 | 2/3/20 | 2/10/20 | 2/17/20 | 2/24/20 | 3/2/20 | 3/9/20 | 3/16/20 | 3/23/20 | 3/30/20 | 4/6/20 | 4/13/20 | 4/20/20 | 4/27/20 | 5/4/20 |
| **Presentations** | | | | | | | | | SPRING BREAK | | | | | | | |
| Proposal | | | | | | | | | | | | | | | | |
| PDR | | | | | | | | | | | | | | | | |
| CDR | | | | | | | | | | | | | | | | |
| Final | | | | | | | | | | | | | | | | |
| **Bare Bumblebee** | | | | | | | | | | | | | | | | |
| Build Bare Board | | | | | | | | | | | | | | | | |
| Test Board | | | | | | | | | | | | | | | | |
| Relay Testing | | | | | | | | | | | | | | | | |
| **PCB Bumblebee** | | | | | | | | | | | | | | | | |
| Fabricate New Board | | | | | | | | | | | | | | | | |
| Order New Parts | | | | | | | | | | | | | | | | |
| Populate | | | | | | | | | | | | | | | | |
| Test Board | | | | | | | | | | | | | | | | |
| Relay Testing | | | | | | | | | | | | | | | | |
| **Research** | | | | | | | | | | | | | | | | |
| Raspberry Pi | | | | | | | | | | | | | | | | |
| WiFi Method | | | | | | | | | | | | | | | | |
| **Reports** | | | | | | | | | | | | | | | | |
| Final Report | | | | | | | | | | | | | | | | |

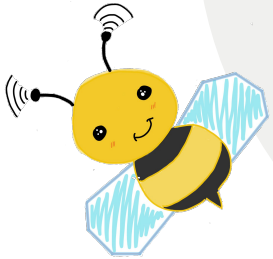
# Team Progress

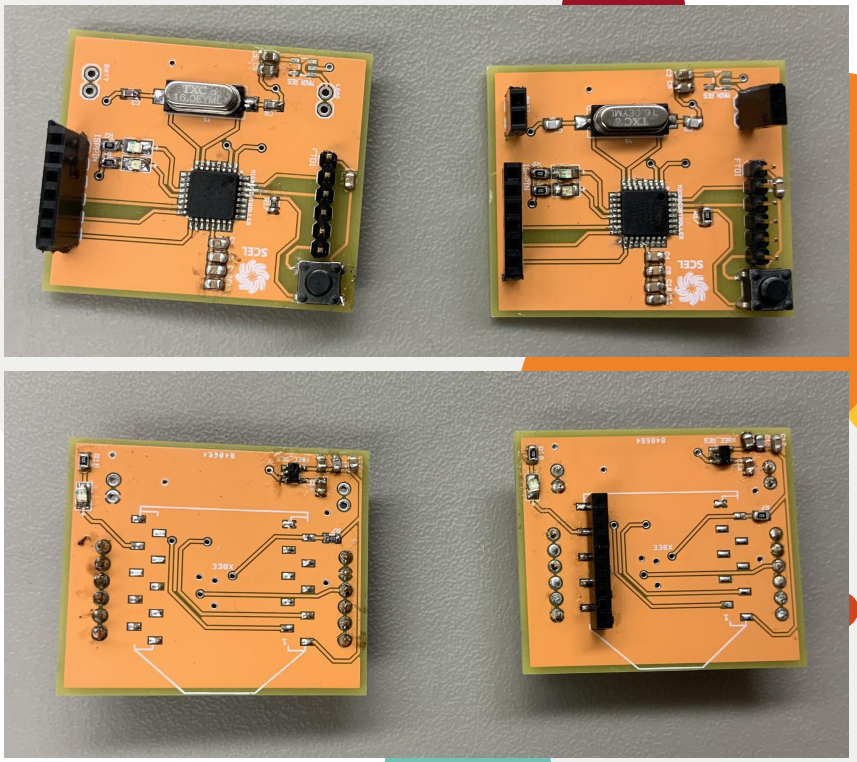
- Have a working Bare Bumblebee
- Ordered new parts via Ron Ho
- Populated old PCB
- Start fabricating new PCB
  - New 5V voltage regulator



# Old PCB Design

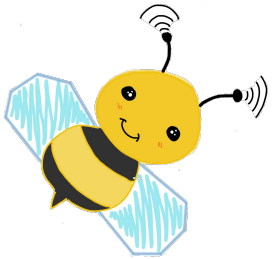


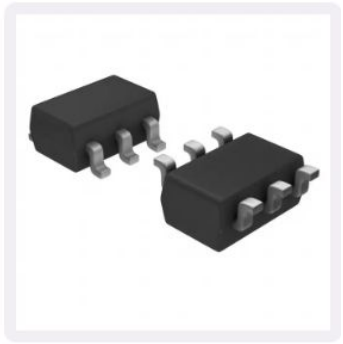




# New PCB Design

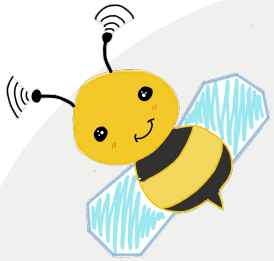
- Main Change: 5V Voltage Regulator
  - Part Number:  ISL9111EH50Z-T7A
  - IC Reg Boost 5V 800mA





| | | |
|---|---|---|
| Function | Step-Up | ☐ |
| Output Configuration | Positive | ☐ |
| Topology | Boost | ☐ |
| Output Type | Fixed | ☐ |
| Number of Outputs | 1 | ☐ |
| Voltage - Input (Min) | 0.8V | ☐ |
| Voltage - Input (Max) | 4.8V | ☐ |
| Voltage - Output (Min/Fixed) | 5V | ☐ |
| Voltage - Output (Max) | - | ☐ |
| Current - Output | 800mA (Switch) | ☐ |
| Frequency - Switching | 1.2MHz | ☐ |

# Predicted Problems



- Debugging
  - Hardware and Software
- Time Management
- Weather Condition
  - Cannot vary relay results
- Networking
  - Multiple weatherboxes