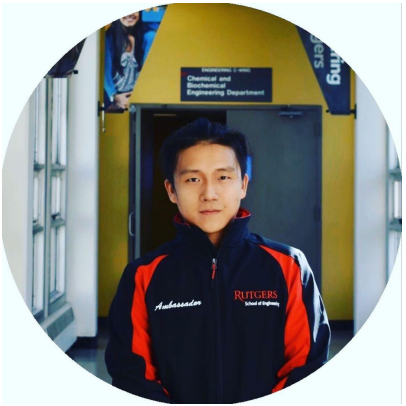
Investigating the Biological Impacts of Radio Spectrum Transmissions

The bee project group



Undergraduate Student:

Zhenzhou (Tom) Qi

Graduate Student:

Murtadha Aldeer

Instructor: Richard Martin;

Richard Howard

Objectives & Current Phase

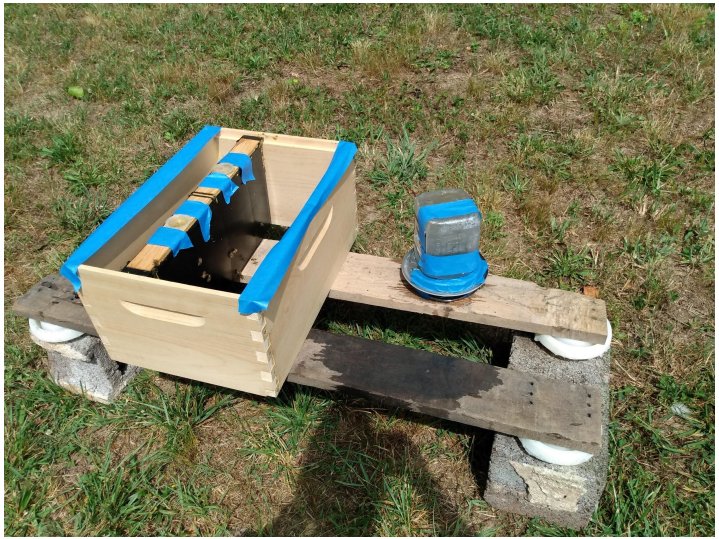
- Bees use Earth’s magnetic field for navigation and orientation.
- Explore if RF(Radio Frequencies) has any impact on the behaviors of the bees.

What we have done so far:

- A Method to conduct the experiment.
- A prototype for magnetic field sensing (using a magnetometer)
- Basic equipment design: camera, feeder pump

Tasks completed/on-going this week

- Professor Martin has deployed feeders in Hort Farm.



Tasks completed/on-going this week

- Walkthrough on small details of other components on PCB board.
- Identified additional components needed to add on to current design.

  1 . Buck Converter: DC ~ DC power converter

  2. Regulator: maintains a designed characteristics

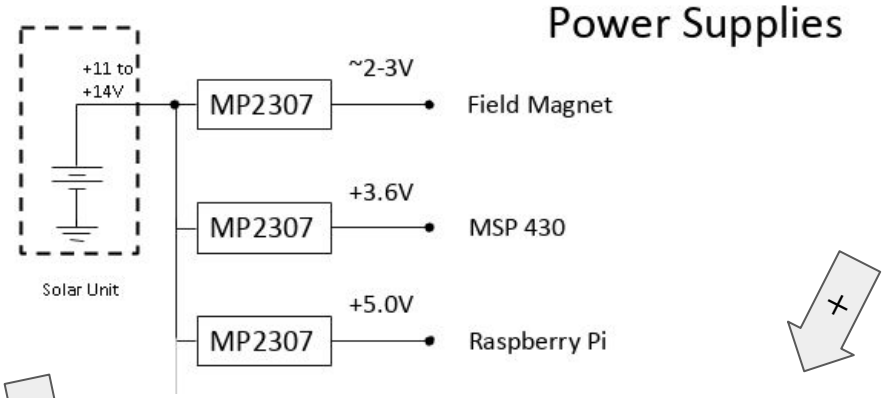
  3. Relay: an electrically operated switch. (switch direction of magnetic field)

  4. Different type of FET: FQP30N06L; TN0702N3

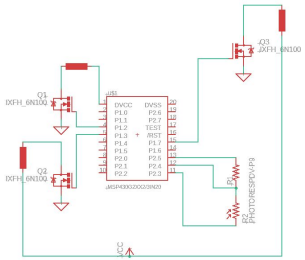
  5. Header size.

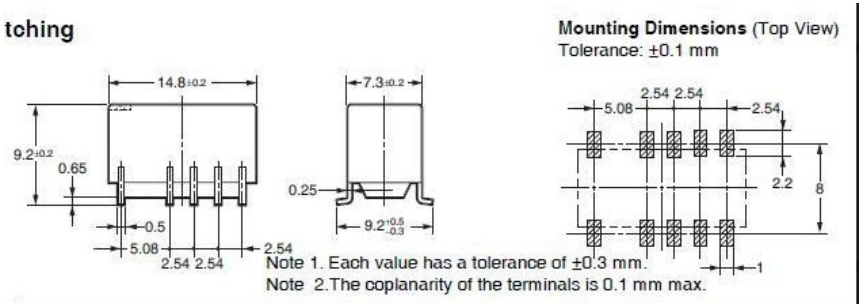
Detail shown in next slides.

Tasks completed/on-going this week



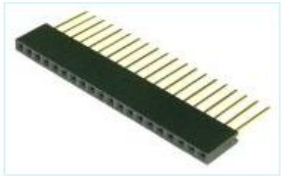
Overview of Power supply: buck + regulator

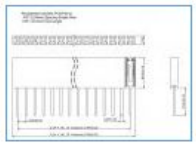




Relay: acts like SR flip flop to change direction of Magnetic field on tubes

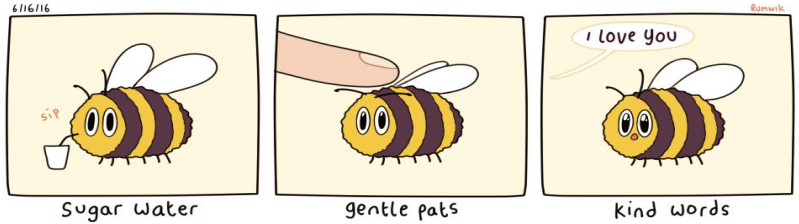
1x40 Pin Female Header .1"Sp Long Tail





Header size to attach newly designed PCB to MSP430

Goal Next Week(s)



- Add the above components to current design.

Questions?