IEEE RAS-SIGHT: The Honey Bee Initiative - Smart Hive

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Motivation:
- Bees are an important part of our echo system.
- Bees help at least 30% of the worlds crops.
- 90\% of the worlds wild plants to thrive via cross-pollination.

The Problem:
- Beekeepers lost 44% of bee colonies over the winter, this is up about 10% from the previous decade (between 2015 and 2016).

Causes:
- Overall hive health.
- Varroa Mite infestations.
- Poor moisture levels
- Healthier the hive the more likely it is to survive the winter.

Current Monitoring Methods:
- Manual invasive
- Low spatial and temporal resolution

Goal:
- Create a proof-of-concept non-invasive hive monitoring system.
- Create a proof-of-concept cloud based bee-monitoring porthole.
- High temporal and spatial resolution.

Deliverables:
- Smart-Hive V1 proof-of-concept system
- Non-invasive means of estimating location of queen and hive activity
- Cloud based bee monitoring porthole
- OpenSource and OpenHardware