Mission Statement: Ultra Low Power Activity Detection using Camera

Arzuaga, Hirokatsu; Eldridge, Justin; Fricke, David; Holt, Zac; Humphrey, Joshua; Lauterbach, McKenna

Product Description:

- An extremely low-power portable module that uses a camera system and ML technology to be able to track and count activity (people), then store/transmit that data.

Benefit Proposition:

- Low-power module meaning that it does not require human intervention to do things like change batteries.
- Portable technology capable of counting and tracking activity (people) has many wide-reaching uses, such as keeping monitoring hiking trails, bike paths, or border security.
- Customizable and modifiable technology increases its range of uses, and creates opportunities for future work using this product.

Key Business Goals:

- Finish project by May 2022 (ENGR 402).
- Increase student participant's knowledge of corporate engineering, and grow & expand their skillset.
- Create a product that's applicable to a wide range of tasks.

Primary Market:

- SI International, client.
- Security applications (border patrol, police, park rangers).

Assumptions and Constraints:

- Extremely low power: ideally uses a solar cell and super capacitor, though a 3V battery could possibly be used.
- Can detect activity from 10-50m
- Transmits data using BLE5.
- A larger separate module is used to interface with (potentially multiple of) these devices.
- Needs to be able to withstand outside conditions (heat, wind, etc.).
- Module needs to be covert; not easily noticed, as to avoid theft/destruction.

Stakeholders:

- SI International, client
- Prof. Nogales, Prof. Garcia
- Student participants