Risk Investigation

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MCU and Camera Module

The MCU is the “brain” of the project. It serves as the main computational component as well as the controller for the peripheral and sub systems. We require the MCU to provide computer vision services as well.

The camera module will provide the visual data necessary for performing the CV.

Project Needs

1. Collect data about the use of the trail.
2. network must operate long enough to collect the relevant data.

Engineering Specs.

1. MCU must perform CV services.
2. MCU must have low power modes.
3. Camera must be able to collect images of a high enough quality ti perform CV on.

MCU Options

- The Beagle Board might provide the computational power needed but is also high in power consumption.
- The Gumstix modules are overpowered for the application and also high in power consumption.

MCU Option Cont

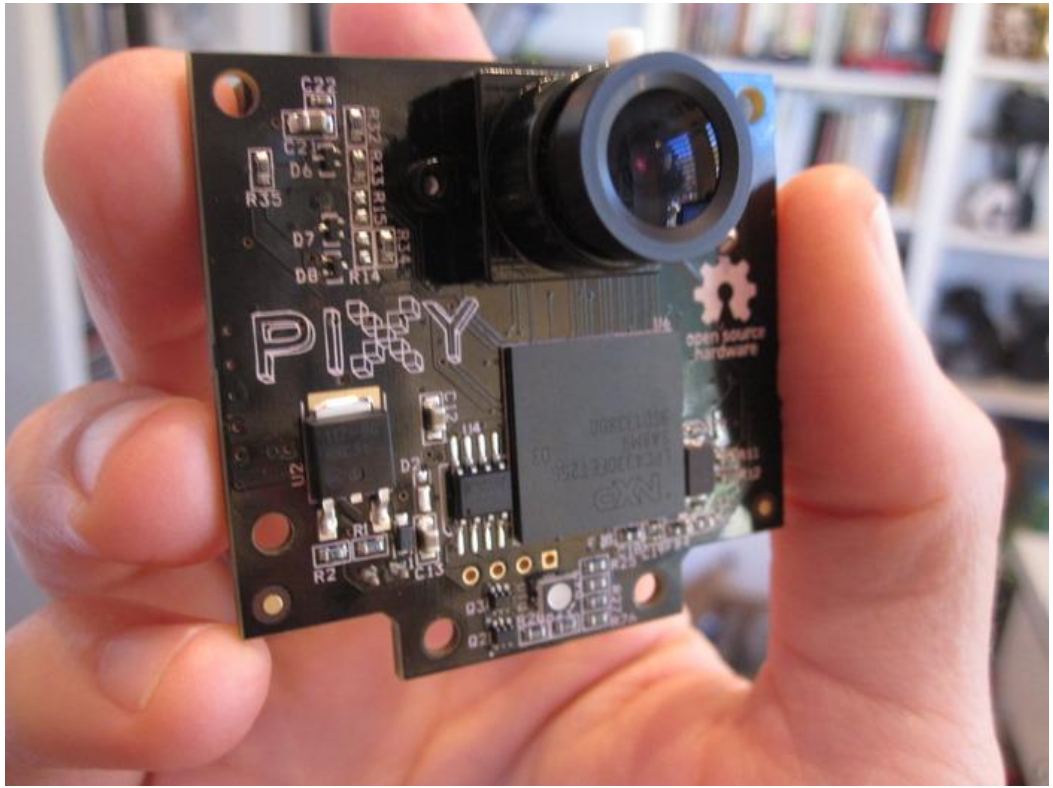
- Raspberry Pi would be about right for the computational power needed but is again high in power consumption.
- Cognivue ICPs are low power MCUs that specifically offer hardware optimized for CV services.

Camera Module Options

1. Pi Cam is a module that interfaces with the raspberry Pi, It is reasonably priced but the image quality is low.
2. CMU Cam 5 Pixy is a camera module with an embedded control unit.

Design Concept Options

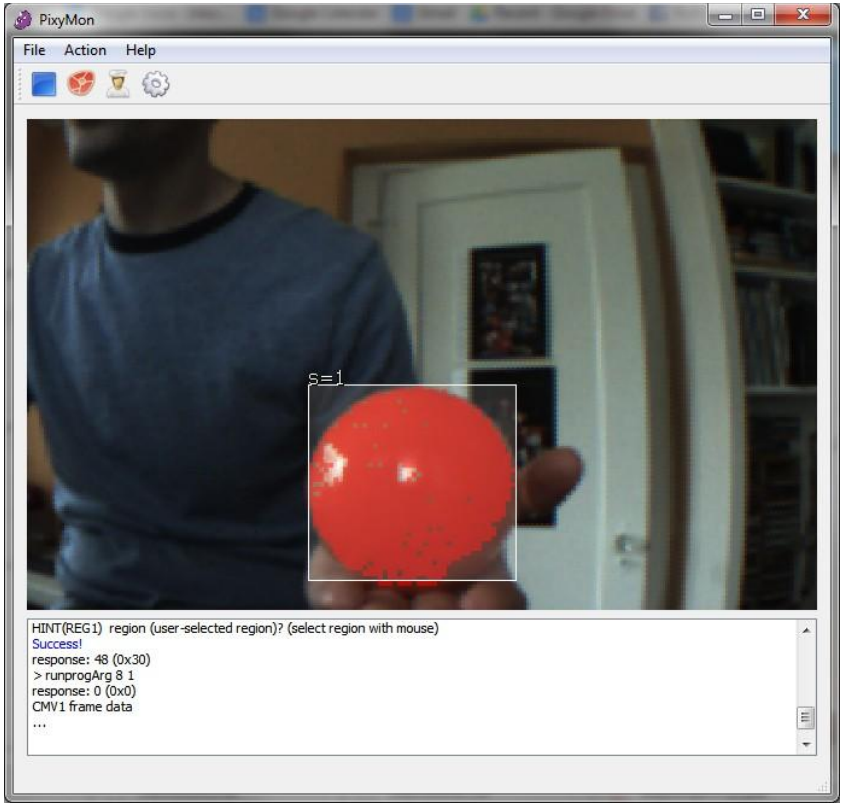
1. Dev a single module that offered all the services that we need.
2. Combine an off the shelf MCU development board with an off the shelf camera module to achieve the desired effect.
3. A module that combines both the MCU and Camera into a single module.



CMUCam 5 Pixy

Technical Specs

- Processor: NXP LPC4330, 204 MHz, dual core
- Image sensor: Omnivision OV9715, 1/4", 1280x800
- Lens field-of-view: 75 degrees horizontal, 47 degrees vertical
- Lens type: standard M12 (several different types available)
- Power consumption: 140 mA typical
- Power input: USB input (5V) or unregulated input (6V to 10V)
- RAM: 264K bytes
- Flash: 1M bytes
- Available data outputs: UART serial, SPI, I2C, USB, digital, analog
- Dimensions: 2.1" x 2.0" x 1.4
- Weight: 27 grams



Computer Vision Tracking

High Density Tracking