

Mechatronic Football Vision System

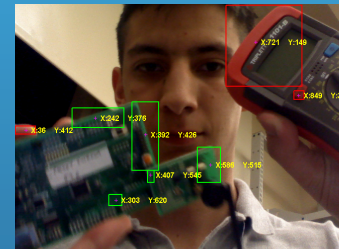
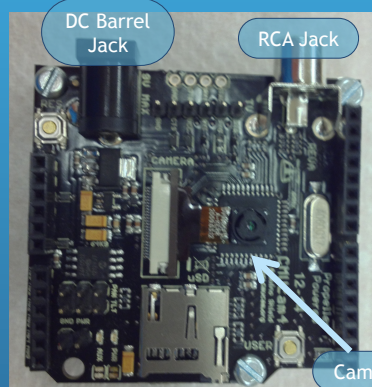
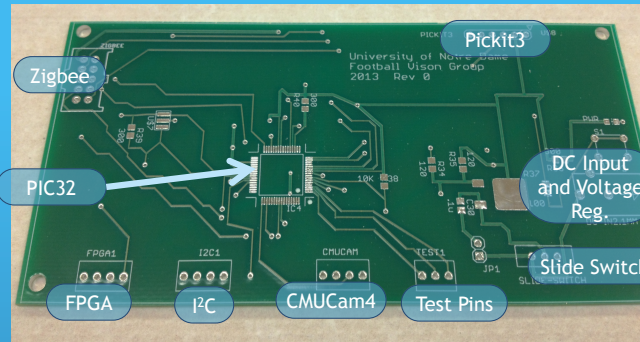
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Problem

- The problem with Mechatronic Football is that it is difficult to accurately throw the football and complete a pass
- The current system is unable to measure distance between robots accurately
- The system needs to be updated so that it can measure distance, so calculations can be made to accurately throw the ball

Proposed Solution

- We proposed using a camera system that can accurately locate the robot players and measure distances between them
- The information will be relayed to the robots and players in order to make a decision
- The system would be placed above the playing field



Example of Object Identification and Location

Project Description

- The completed project consists of four subsystems
- CMUCam4 - captures image of playing field and sends bitmap to other subsystems
- Board/Microchip - controls the sending and receiving of images, as well as the storage and processing of images
- Image Tracking - determines contours to find continuous objects, filters color to find differently colored pieces, and finds coordinates of these objects
- Wireless Communication - uses SPI interface to communicate information between the board and a computer terminal, where a user can read and apply the information
- The final information received can be used to make calculations to accurately throw passes

System Block Diagram

