

# Tennis Assistant

***Group #4***

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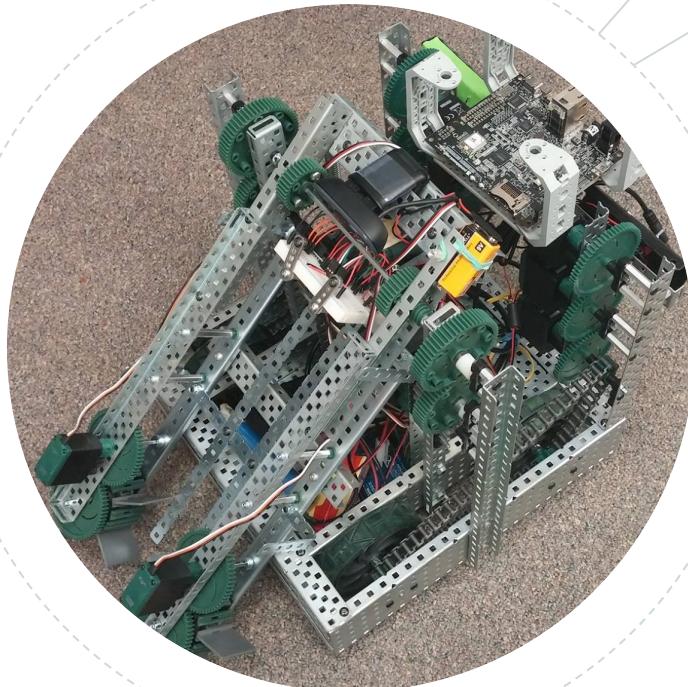
*Albert Chung*

# Current Problem

- Picking up tennis balls **detracts** from tennis
  - In cases of disability sports programs, additional volunteers are **needed**
  - Managers of multiple courts need to **pay** employees to pick up stray balls at the end of the day
- In essence, the current system of object retrieval causes societal **inefficiency**.

# Tennis Assistant

- Automatically find and retrieve tennis balls and places them in a basket
- **Unobtrusive**
- Can be operated via remote to move between courts
- Sends feedback



# How to Use the Assistant

## User Manual Control

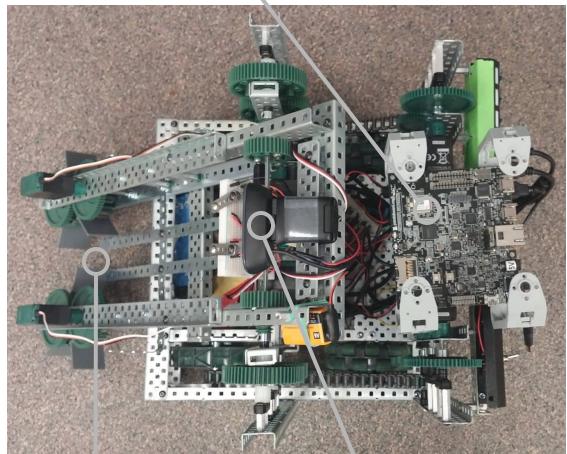
1. Connect to the robot via a website on the PC or manual.
2. Log on via a key associated with the robot.
3. Control using the buttons.

## Artificially Intelligent Agent

1. Autonomous control does the automatic retrieval.
2. Can interface with voice command and audio feedback.

*Currently not implemented in this demo*

Pandaboard



Claw

Camera

# Future Plans



## Sonar and Encoders

Keep track of the distance from other objects and recording the robot's pose.



## Artificial Intelligence

Complete and integrate the autonomous agent such that the robot doesn't need to be controlled.



## SLAM

Possibly record and observe the environment to determine a better pathing algorithm.



## Computer Vision

Detect multiple tennis balls as well as a 3 dimensional basket.



## Speech Engine

Increase speech accuracy and build a text to speech library for user feedback.



## Logger

Send textual feedback to the user as well as possible video feed for real time analysis.

