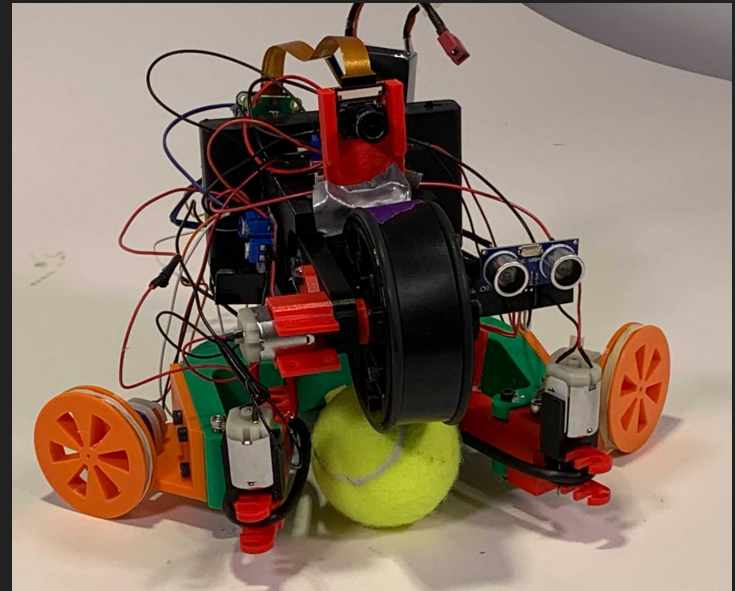


RoboPult

ME134 HW5 Group 8

Kat Allen
Ilan Felberg
Chris S. Thierauf



Mechanical Design

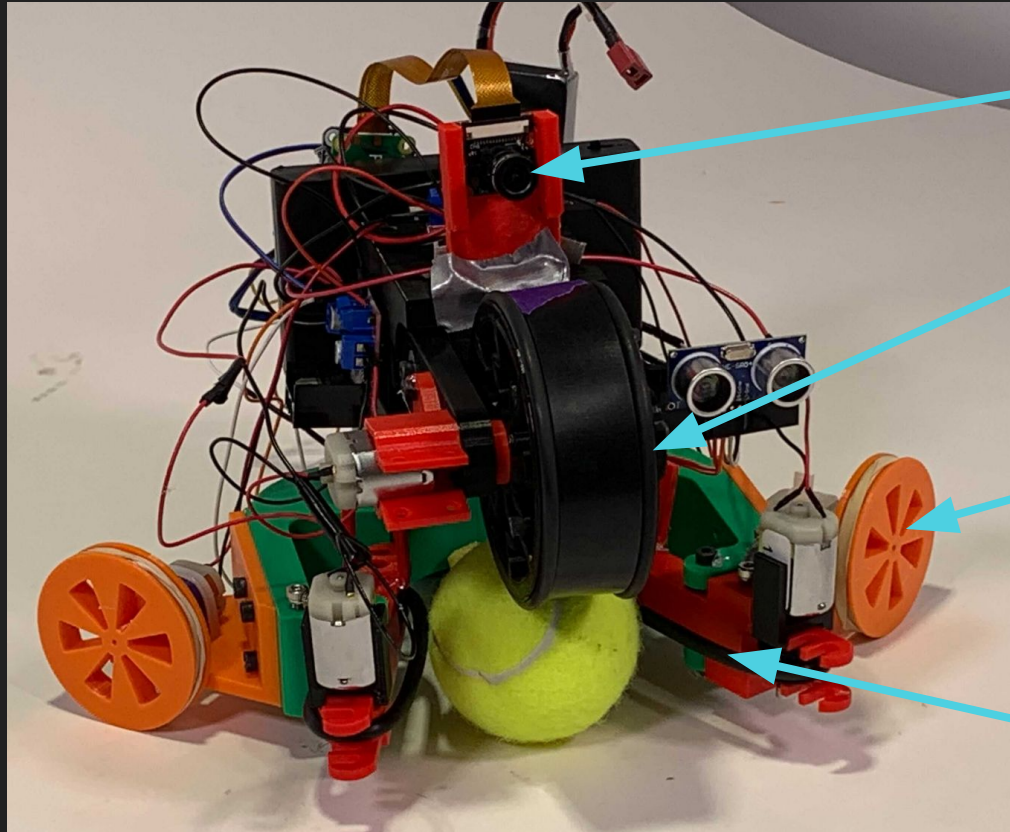
Creativity and Innovation

Vertical flywheel keeps ball on the ground

Belt operates as both funnel and actuation mechanism

Drive wheels for rotation

All 3d printed with no supports necessary



Camera

Identifies eyes to ensure the player is ready

Flywheel

Rotates to catch and throw the ball to the player

Drivebase

A pair of angled wheels rotate the robot around a fixed point to target a player

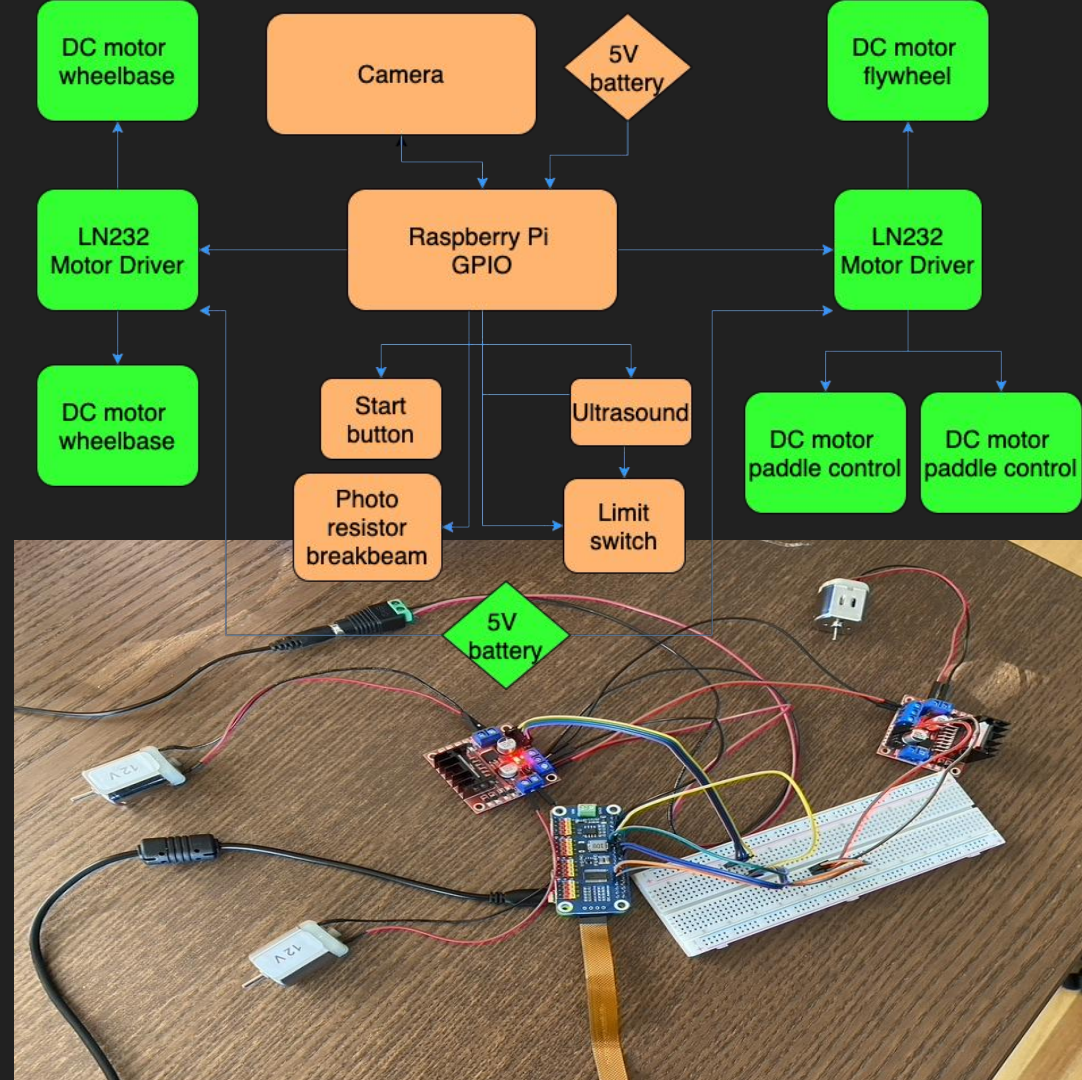
Rotating Belt

Rotates inward to pull the ball in and out of contact with the flywheel

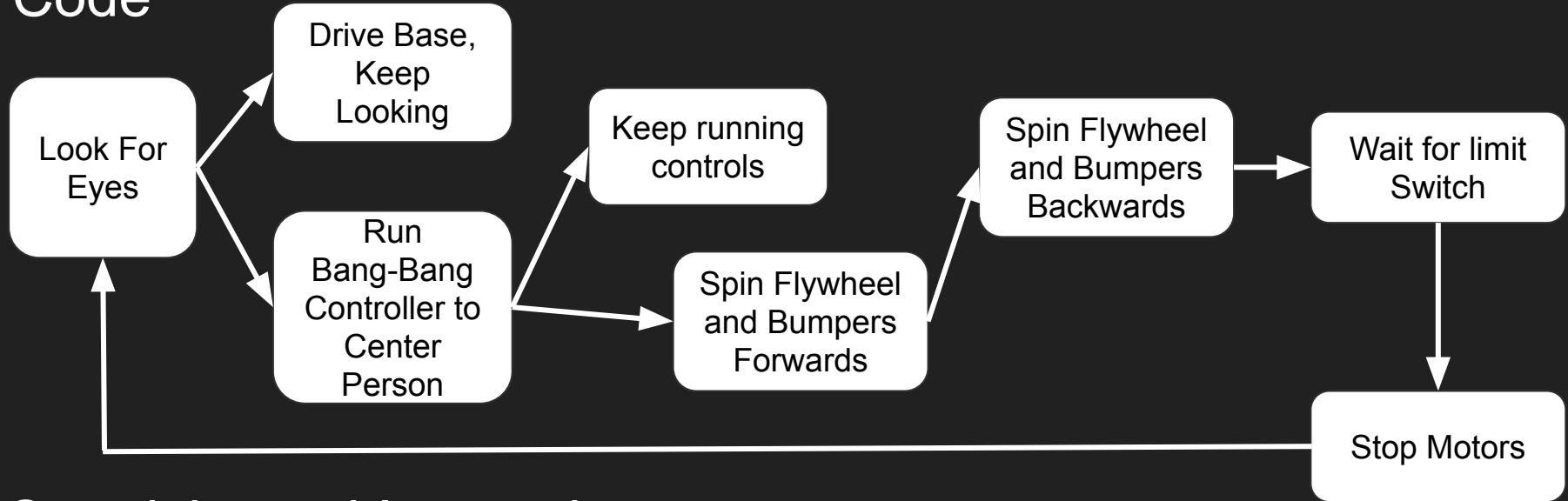
Electronics and Wiring

Creativity and Innovation:

- Integrated 12V battery pack takes AA batteries
- Fully distinct power systems (but common ground) for information components (5V) and drive components (12V)
- Paddle motors can share a motor driver because they always operate in tandem
- All electronics controlled by Raspberry Pi GPIO



Code



Creativity and Innovation

- Haar Cascades for Eye Detection
- Bang-Bang Controller
- Developed Light Sensor with LED and Photoresistor

RoboPult Plays Ball



Thanks!



Questions?