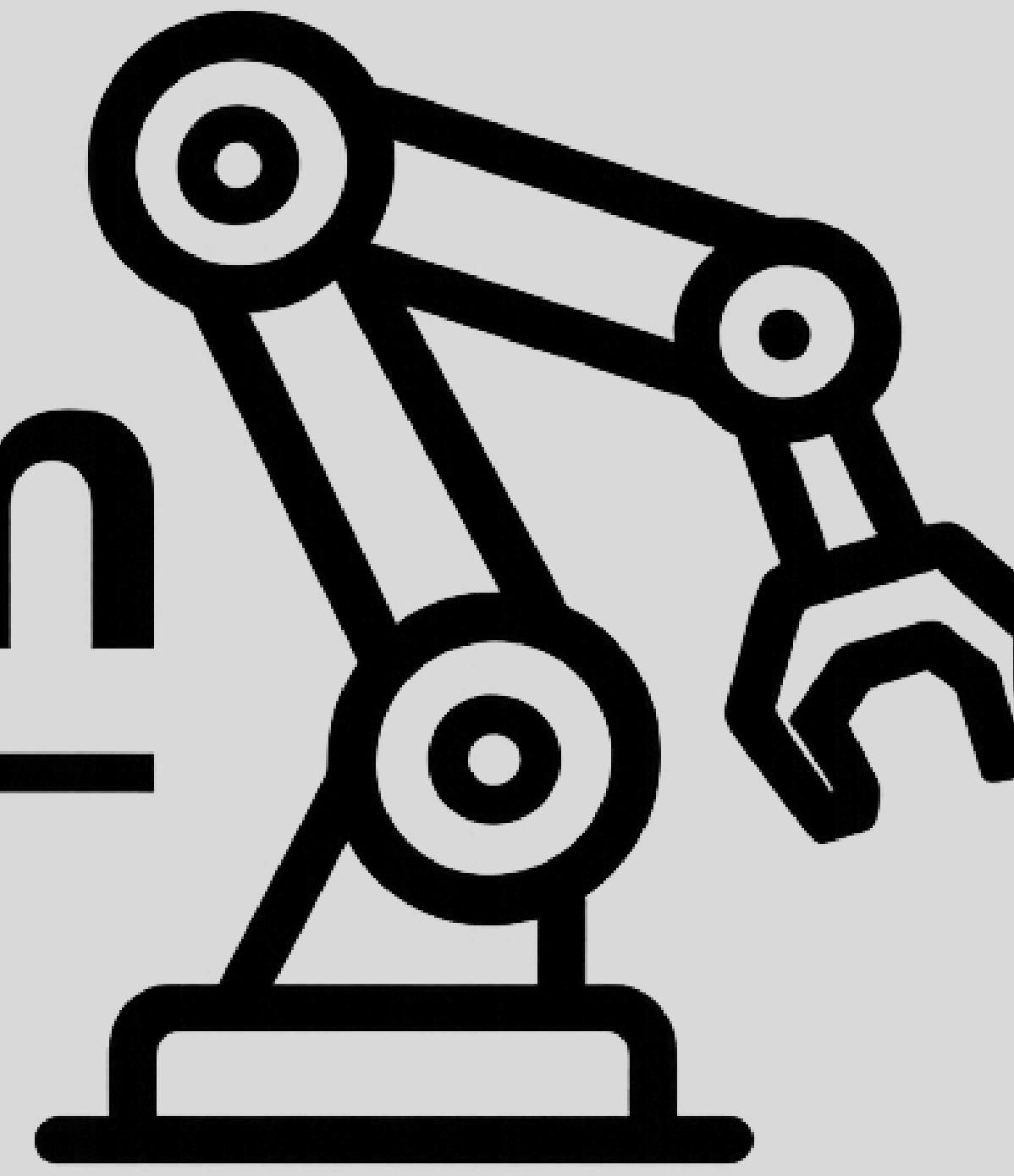


Robotic Arm Computer Vision



Our Team

Isaiah
Pajarillo



Aidan
Hodges

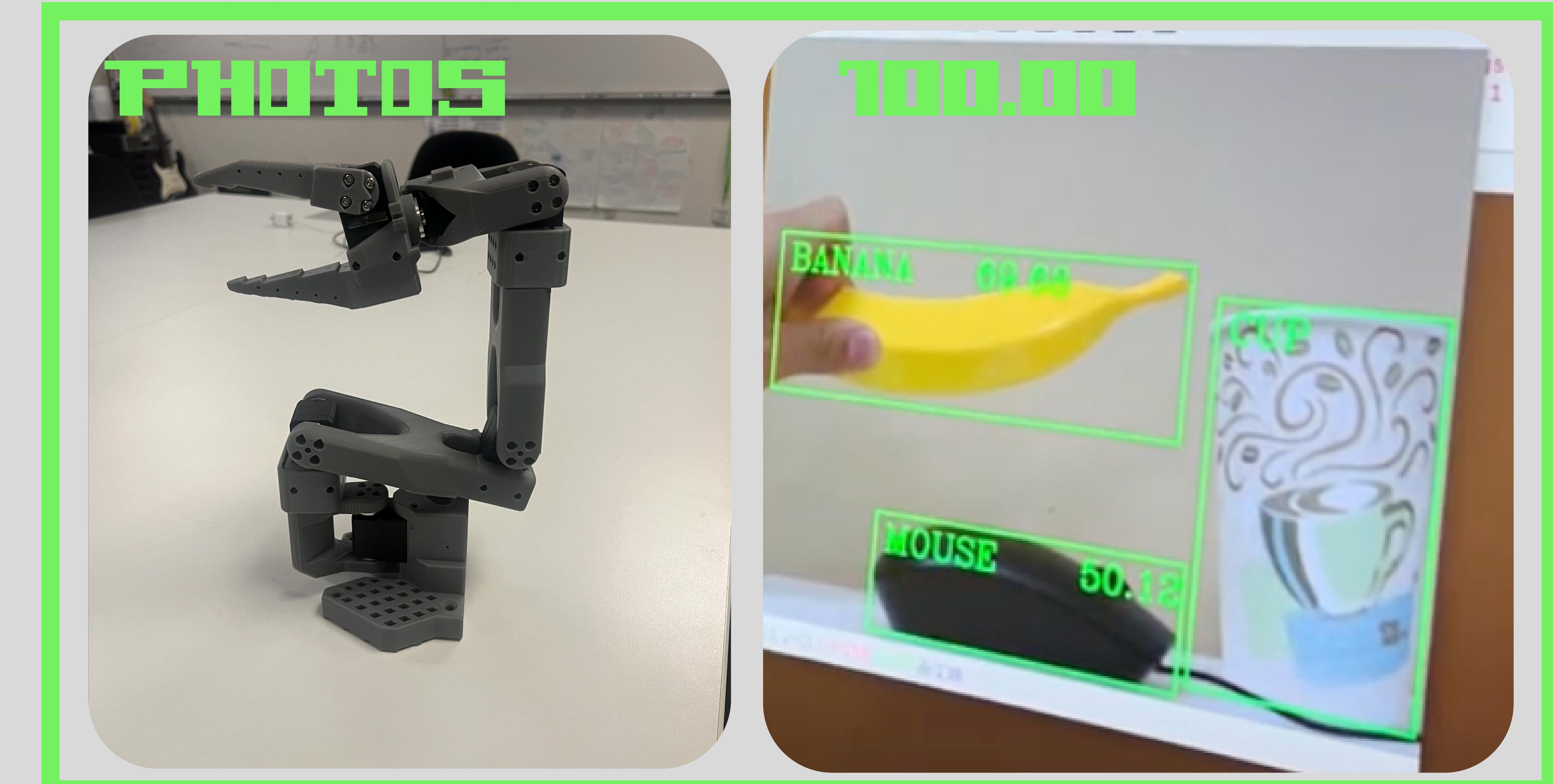
Dylan
Suzuki



Jackson
Muller

Overview

We designed a robotic arm system that uses computer vision to analyze a cluttered tabletop environment. Through OpenCV image processing, it detects and identifies target objects captured by a webcam. Using inverse kinematics, the system calculates the precise servo angles needed to move the arm. Finally, the servo-driven mechanism picks up and relocates the identified object to a designated position.



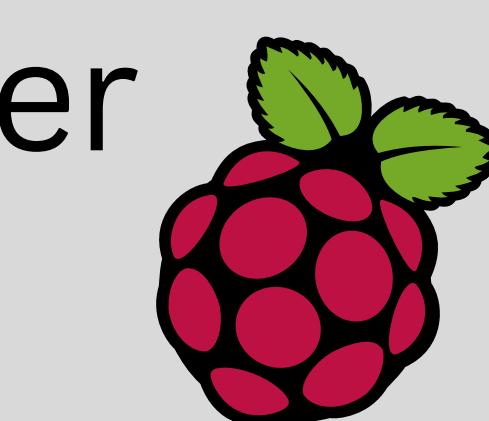
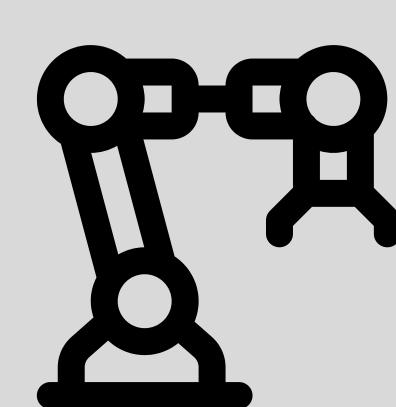
Motivation

Our motivation was to use concepts from previous classes that we have taken at LMU, such as Artificial Intelligence, Algorithms, and Operating systems. We wanted to apply these topics in a practical hands-on experience using python and open libraries such as OpenCV and pandas. Another motivation we had is that we all wanted to do a project that gave us the opportunity to work with hardware. We all have very little experience with hardware, so this project helped us get out of our comfort zone and learn new things.

Technology Used

Hardware

- SO-ARM100
- STS3215 Servos
- Servo Driver Board
- Logitech Webcam
- Prusa 3D Printer
- Raspberry pi



Software

- Python
- OpenCV
- coco
- Numpy

