Smart Automated Parking System

Group 3 Members

1. Nkum Collins Osei - 1873222
2. Owusu Michael Boamah - 1873722
3. Abdulai Sadique - 1870922
4. Wesley Akanyako - 1871222
5. Isaac Boateng - 7148621

Table of Contents

1. Problem Statement
2. Methodology
3. Code & Schematics Overview
4. Demonstration & Simulation
5. Findings & Challenges
6. Conclusion & Future Improvements

Problem Statement

- Manual parking systems are inefficient.
- Drivers struggle to find parking spots, causing congestion.
- No automated system to check if parking is full before entering.

Our solution provides

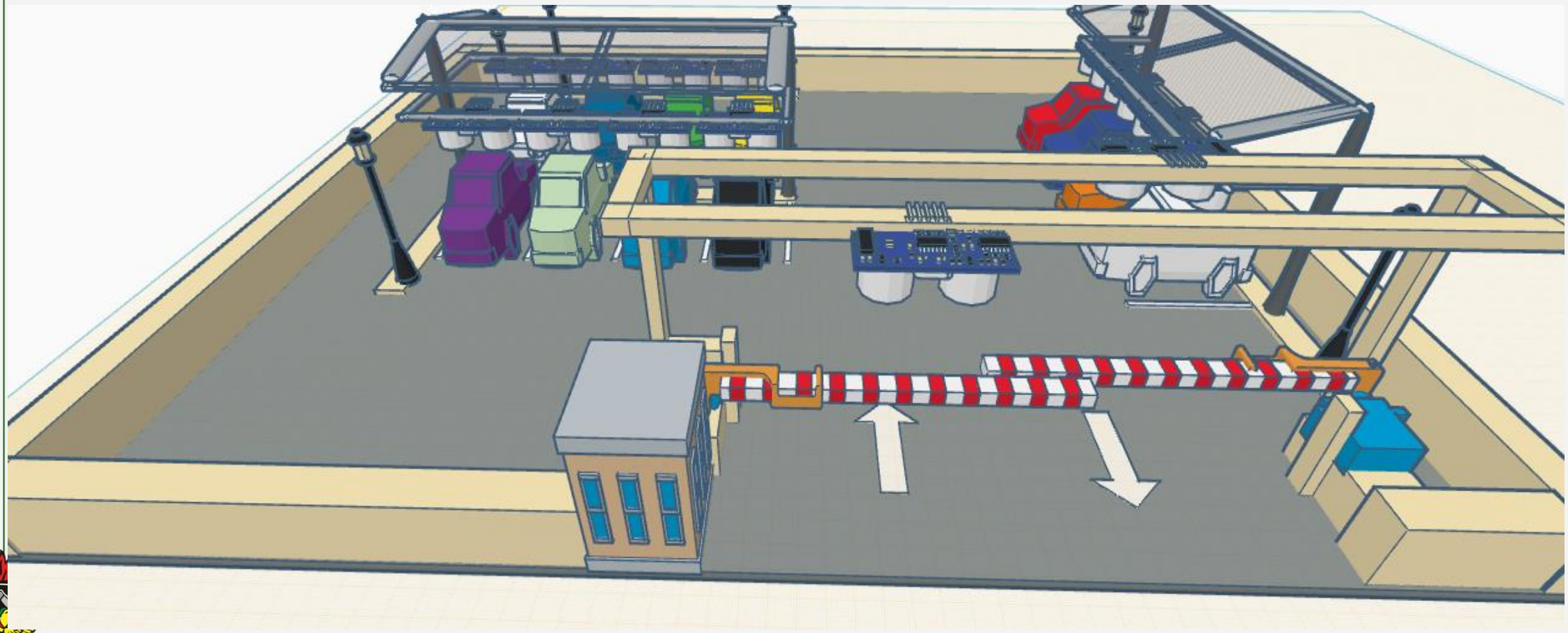
- Real-time automated parking detection
- Gate control based on parking availability
- Improved parking management and efficiency.

Methodology

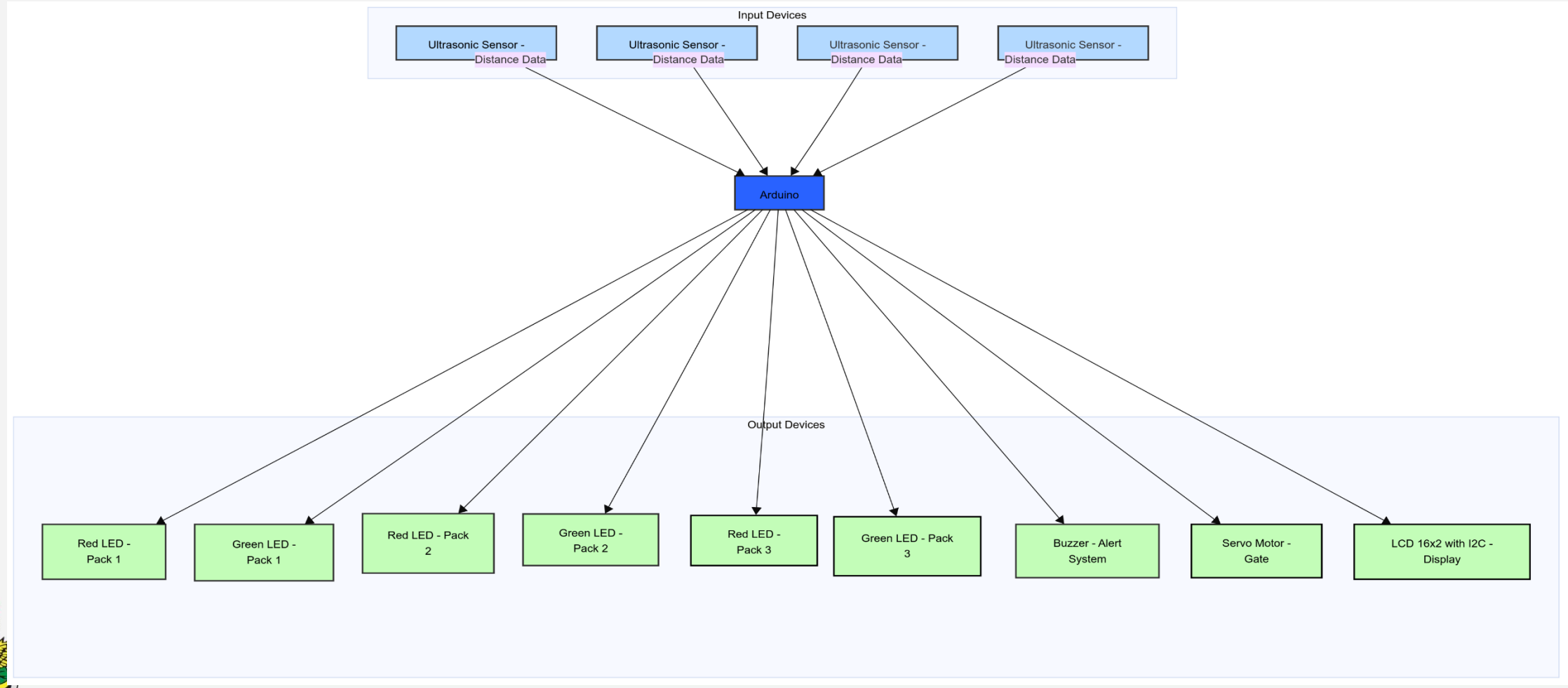
- Ultrasonic sensors detect available parking spots.
- LEDs indicate parking availability (Red = Occupied, Green = Free).
- Gate opens only if parking space is available.
- LCD displays real-time parking status.
- Buzzer sounds when parking is full, and a car is detected.

3D Representation of our project

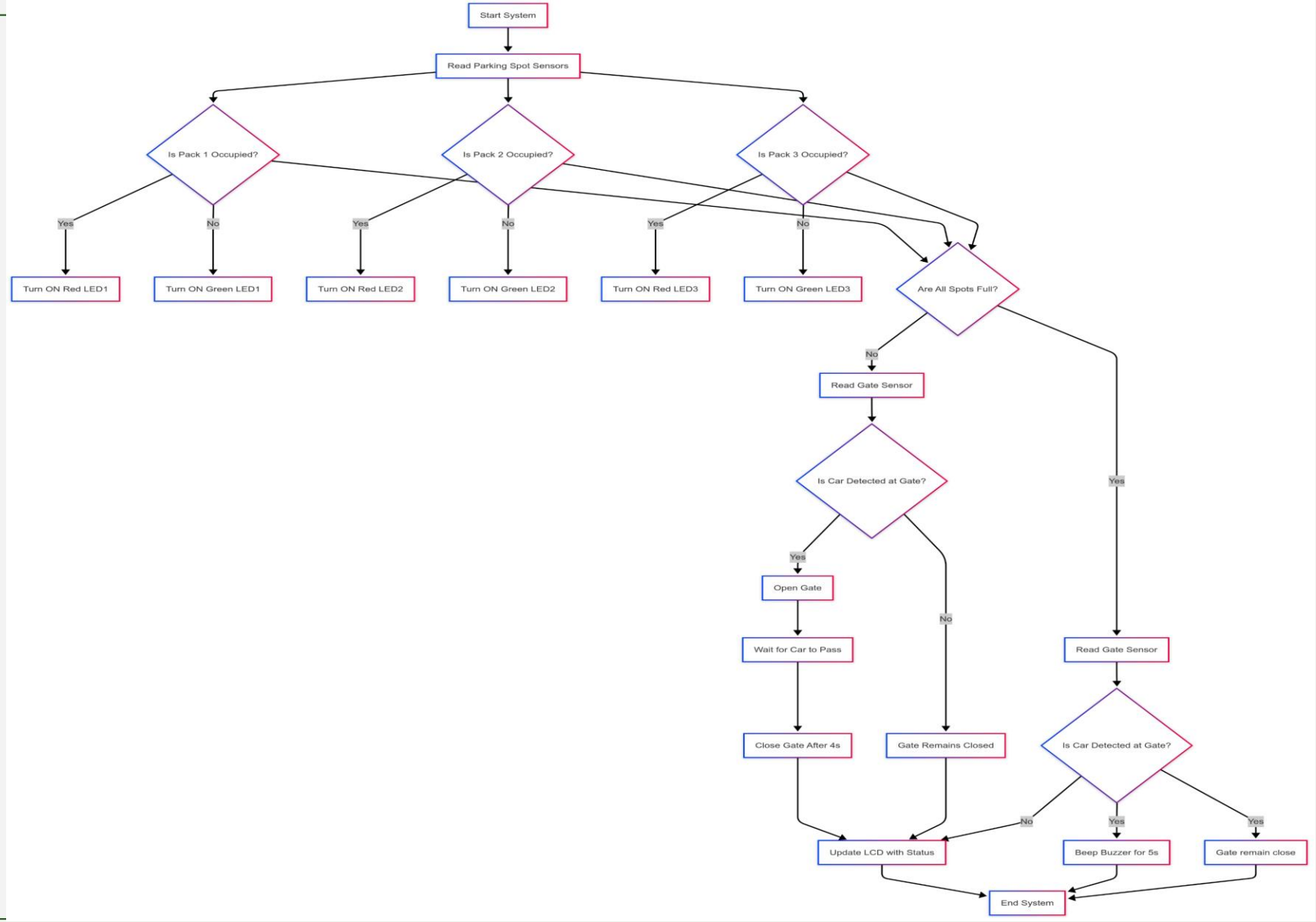
[Link to 3D of our project]



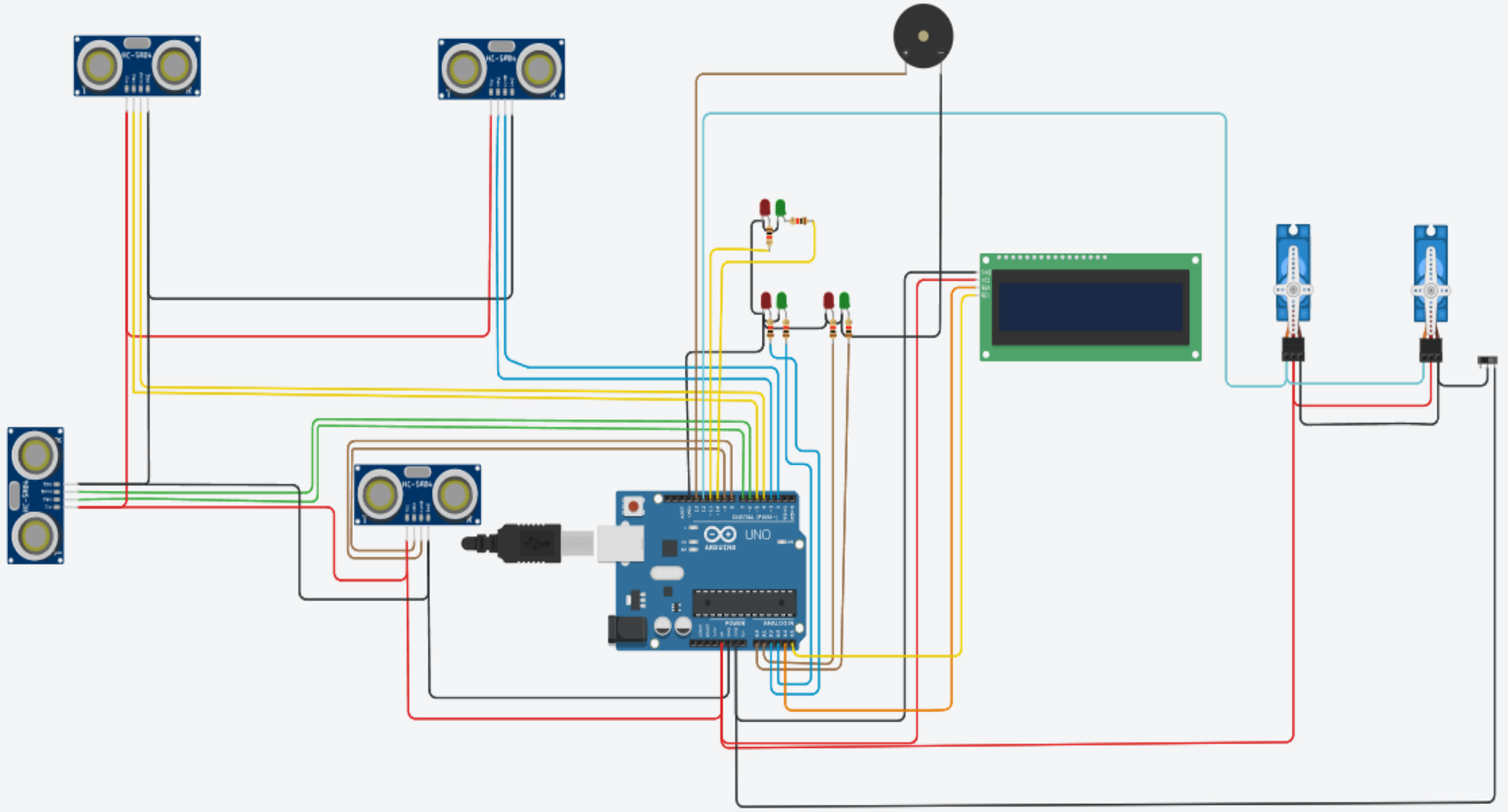
Block Diagram



Flowchart



Circuit Diagram



Demonstration & Simulation

Live simulation of the system.

Observations:

- Parking spots are correctly detected.
- Gate opens/closes based on parking status.
- Buzzer activates only when full parking is detected.

link to Project Demonstration

Conclusion & Future Improvements

Findings

- Successfully implemented an automated parking system.
- Efficient, user-friendly, and scalable.
- System works as expected, reducing manual effort.

Challenges

- Sensor calibration issues.
- Power supply management.
- Servo motor responsiveness.

Future Improvements

- Mobile App Integration for remote monitoring.
- AI-based prediction for parking availability.
- RFID-based entry system for registered vehicles.

THANK YOU

Kwame Nkrumah University of Science and Technology, Kumasi | Leaders In Change

Visit us at www.knust.edu.gh

uro@knust.edu.gh | Follow KNUST on: