

Project Bazaar Day

Team Apollo



Kecheng Yu
AI vehicle counter
algorithm



Zhuo Chen
AI vehicle counter
algorithm

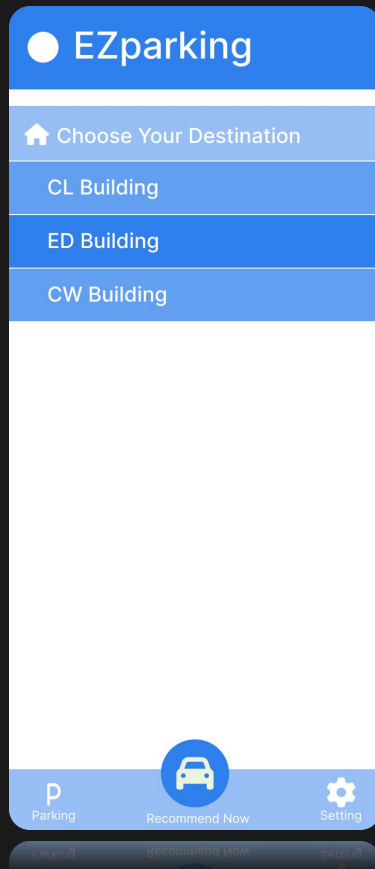


Ziwen Tan
backend
development



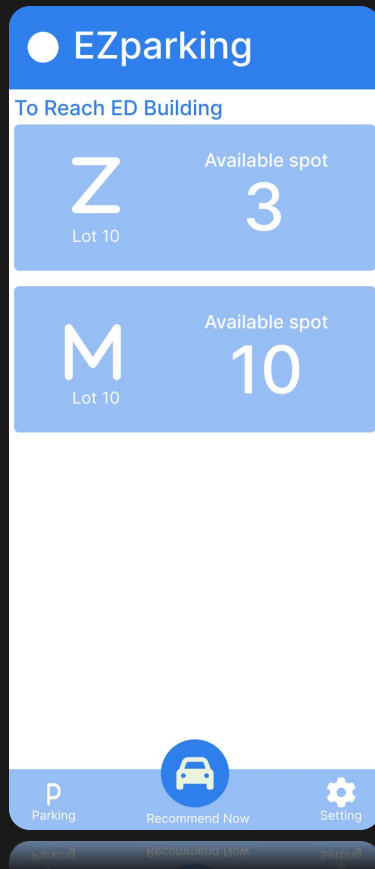
Yilin Ren
Front-end developers
Team Scrum management

Project Introduction



Simple.

Project Introduction



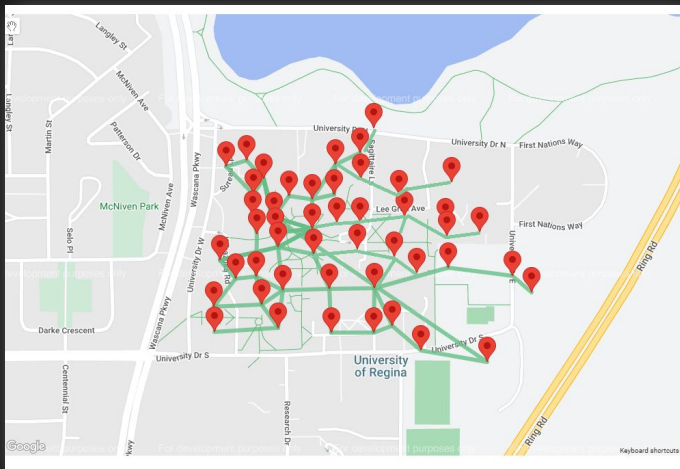
Direct.

Project Introduction



Effect.

Project Introduction

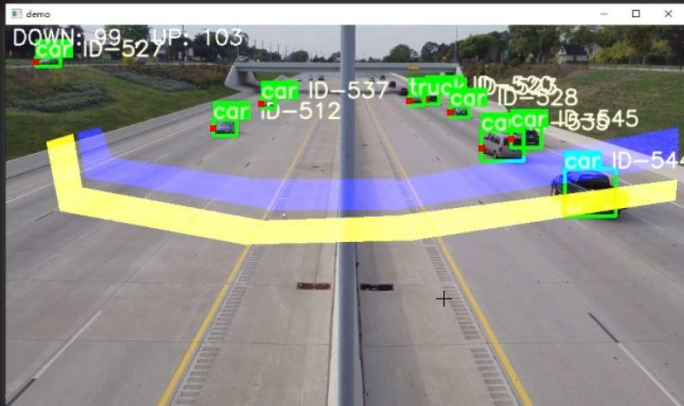


Behind
The Scene

A Star Algorithm

Find Shortest Path Between edges in a graph

Project Introduction



Behind
The Scene

Object Detection Algorithm

Find Vehicle Entry and Exit the Parking Lot

Project issues



Cost issue raised by our mentor

Problem: Yolo v5 is a performance consuming algorithm. Need a good Single Board Computers to run it!

Solution: Modified Yolo v5 to minimize the performance need.




Project Activities

Meet with mentor at Oct 13th: Kecheng, Ziwen and Zhuo (discussed about assumption)

Group meeting at Oct 14th: Yilin (Frontend) Ziwen(Backend) Kecheng (research for AI alternative) Zhuo(research for hardware alternative)

Group meeting at Oct 21st: All member attended (made decision)

Met with mentor at Nov 24th: Kecheng, Ziwen, Zhuo and Yilin (discussed about vehicle detection)

 Kecheng and Zhuo Dec 25 - Dec 31: Yolo V5 modification and realization



Status description

● Green

Milestone 2.1 in progress:

Done (1.9.9 - 2.0)

- Waypoint CRUD API - 1.9.9
- Vehicle count APIs - 2.0
- Use GUI for waypoint management - 1.9.9
- Client side application design and initial implement - 2.0
- Deploy a parking lot vehicle detection AI -1.9.9
- Hook-up the AI application with backend - 2.0

In Process (2.1)

- Next up section



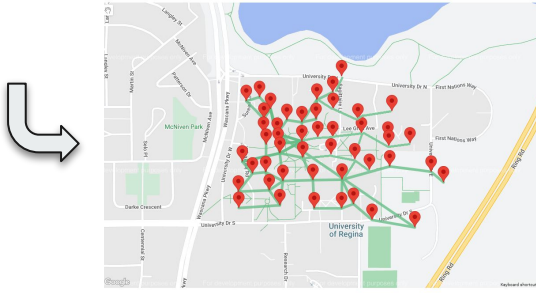
Project changes

No changes since last update

Project/technology update

Frontend

- Finish backend management System
- CRUD waypoints.

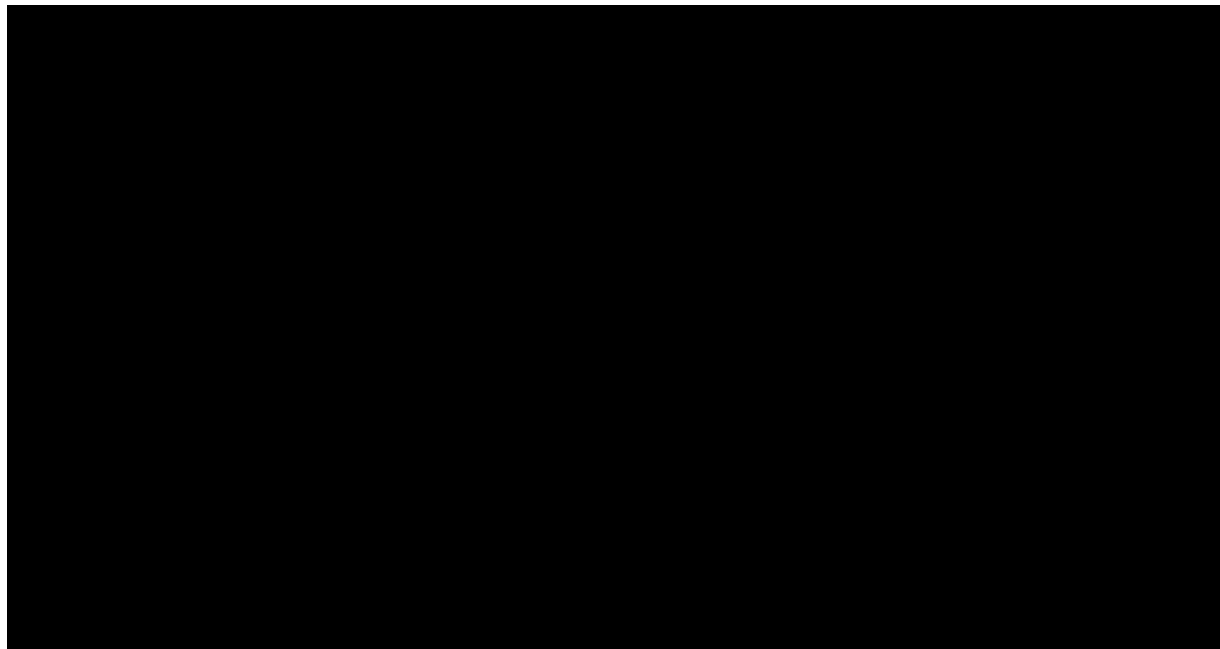


AI-demo

- Able to count the number of vehicles going up and down respectively
- Able to change the hit line anywhere in the video
- Able to assign every vehicle an ID



AI vehicle detection demo





Next up

We will:

- Prove the AI application on SBC (AI)
- Use the waypoint graph and A* algorithm to find shortest path (Backend)
- Client side app implementation (Frontend)



Team reflection/retrospective Tan

In good status

- Everything is going well and the current state is green.
- At this stage, the most completed part is the AI part. Basically can be put into use directly. The frontend also does most of the work.
- The big question at this stage is how to implement the A* algorithm
- At this stage it can be handled by our team.