Sept 8 (Wed)
CMPE295 meeting

Action Item: OpenCV.
By Next week
T.F. python.
yolo4. Program.

1. Team Leader: Jaccob.
2. Meeting (weekly): 4:10-4:40
3. Meeting Notes for Each Team member
4. Title of the Research.
GPU Accelerated Vision Based Edge AI for Self Driving Application
5. Action: Abstract (2-3 paragraphs) ~ 500 words. ← Visit Abstract

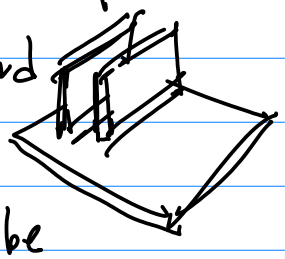
① Objectives { Improve/Develop
Enhance Path Planning Algorithm for In-door Self Driving

Stage 1 → Stage 2 → Stage 3
Simulation | Embedded platform GPU Based NANO/TX2 | Integration Test ON a physical System.

Unity Based Simulation
"Karting" Game. → New Driving Environment → Game Option
Simulation
Script Program to play the game
ML Option
← Based Karting

Sept. 13 (Mon).

1. Meeting (Wed) Weekly 4:10 pm.
2. Simulation & Software Development platform → Finish Tutorial on Interactive Simulation
   - Unity
   - Edge AI (Edge → Embedded platform)
     - NVDA Jetson
       - NANO $50-60
       - TX2 $400 ($200-$
       - Xavier $1000+
     - TX2i, Complete System on module
     - TX2 4GB $300
     - TX2 NX $199
     - a. Cluster of NANO Board
       - HPC
       - High performance Computing → youtube



   - b. GPU, TensorRT (Software), Yolo4 on the platform
   - c. OpenCV, Computer Vision (GPU)

(1) Unity Action Items
1. Setting up the GAME
2. Moving the player
3. Moving the Camera
4. Play Area

(2) Platform
TX2
OR
NANO
HL. (ML, Yolo4)

(3) Yolo4 Running on NANO

(4)

Sept. 22 (W), Ka, Jakcob, Heysung, HL

1. Abstract Discussion

GPU Accelerated Vision Based Edge AI Technique For Self Driving Applications

(1) (2) (3) (4) (5)

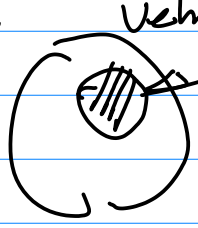
Self-Driving
CmpE295

The scope of Edge AI and Computer Vision applications has broadened rapidly within the last decade. With advancements in computing power, sensor hardware, and real-time decision making algorithms, more sophisticated systems can be delivered at lower costs to consumers. Such systems can be used in the transportation industry, with applications including, but not limited to passenger cars, commercial trucking, and industrial and heavy-equipment transportation. Currently, a small number of companies like Tesla and Rivian employ computer assisted self-driving systems in their vehicles, with the vehicle acting as an Edge AI node.

have

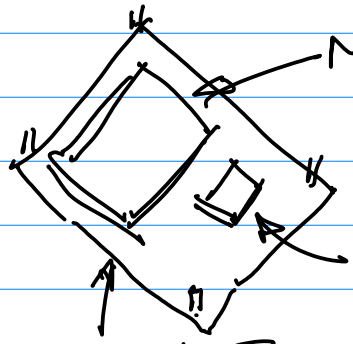
Action! Revisit the Abstract

Edge AI, Edge AI Node
↓
Embedded Systems
Actuators/Sensors

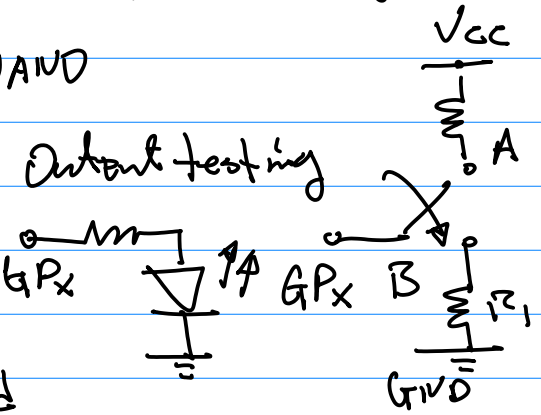


Action2. NAND
① Hello, the world
By Next meeting.

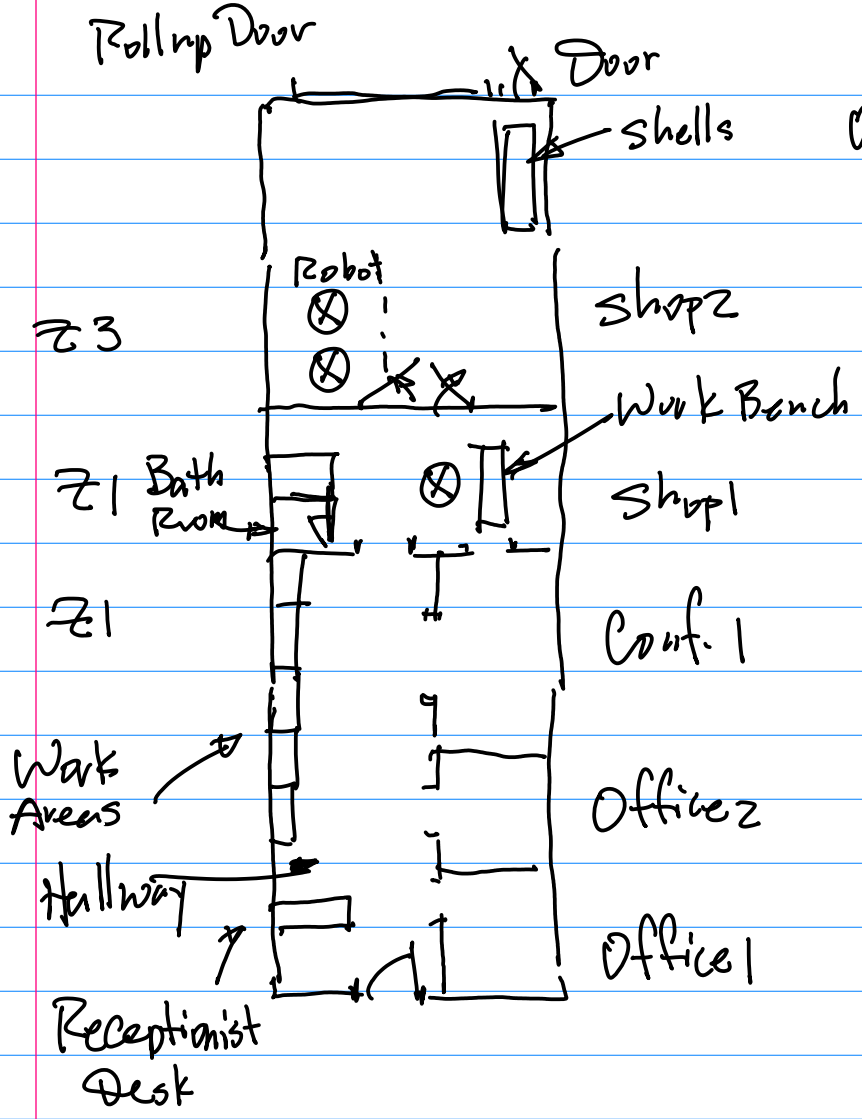
② NAND GPIO/PWM to Drive a prototype Board, to turn on/off LED.



Output testing



Action3. Pseudo Code for indoor Driving. Step1. Unity Environment Office Layout, Based on the tutorial



Objectives: Fetch water Bottle from the shelf in Shop2. to Deliver it to Any location in the Office Compound.

https://github.com/hualili/robotics-open_abb/tree/master/2019S/autonomous-systems-2021F

Sept 28 (W) Jacob, HL

Action: 1° NAND "Hello, the World" python

2° Abstract Update

Add google Deepmind team's work

https://www.google.com/search?client=ubuntu&channel=fs&q=deepmind+self+driving&ie=utf-8&oe=utf-8

https://medium.com/dataseries/how-deepmind-and-waymo-train-self-driving-car-models-bad071a4f64f

How DeepMind and Waymo Train Self-Driving Car Models

Population based training and evolutionary models are used to systematically train self-driving vehicles.

Jesus Rodriguez Follow

Feb 2 · 6 min read ★

https://www.cnbc.com/2021/06/18/computer-scientists-ask-if-deepmind-can-ever-make-ai-human-like.html

Three Action Items

1° Bring up NAND

2° Work on Abstract
   a. Update Abstract
   b. Generate Reference List with 3 URL links;
   c. Read Deepmind paper on github;

3° Unity
   a. Knitting Game —— ML (Computer to play it)
   b. Implement Office Layout.