Vehicle Speed Tracker

Team Name: Think You!

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1. Objective of the Project

1. To make a vehicle speed tracker using a microcontroller given the input Distance from vehicle and the constraint that the vehicle moves perpendicular to the field of view of the camera.

2. Specifications of the solution developed

Hardware used:
1. Jetson Nano
2. 32Gb SD Card
3. Monitor, mouse and keyboard (to boot Jetson Nano)
4. Logitech Webcam (for CV)
5. Adapter (5 V, 4 A)

Software used:
1. JetPack version 4.6.1
2. Python3
3. Jetson inference and jetson utils library
4. openCV library

3. Circuit Diagrams

3.1. Actual Images of Project

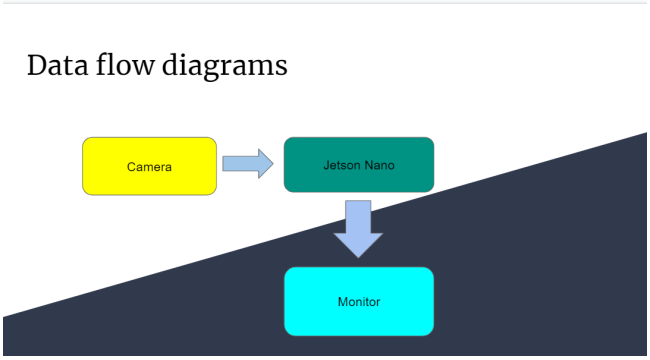


Figure 1: Data Flow Chart

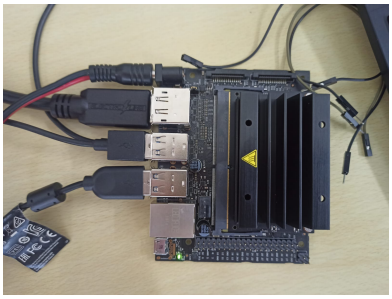
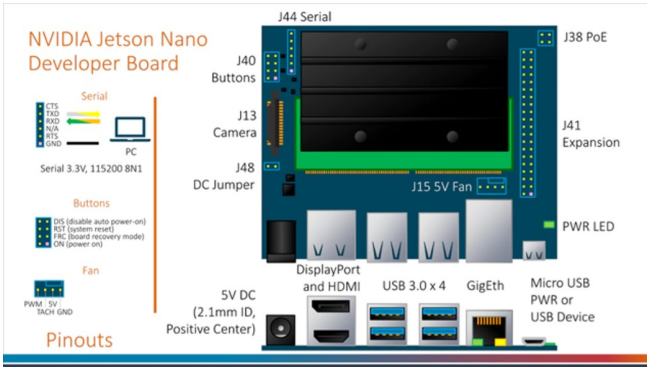
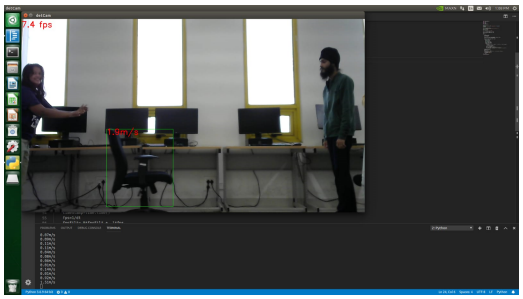


Figure 2: Jetson Nano

Figure 3: Jetson Nano



(a) Jetson Nano Developer Board



(b) Image of Project 2

Figure 4: Data flow diagrams

3.2. Testing details

The following are the testing details of the project:
1. Turn on the microcontroller and run the code after connecting the webcam.
2. Input the distance from the road (the more the better).
3. Now, Wait for a vehicle!!

4. Conclusions and Future Improvements

We successfully made a Vehicle speed Detector using following steps:
1. Inculcating object detection using Deep Learning Libraries.
2. Using Object Detection to estimate the distance moved by the Vehicle with respect to the input distance from the camera.

Future Improvements involve:
1. Inculcation of Multiple Vehicle Locking and speed sensing.
2. Detecting speed for various motion directions.
3. Adjusting the microcontroller for variable vehicle distance.