**FORWARD COLLISION WARNING SYSTEM BASED ON DEEP NEURAL NETWORKS**

Batch No: 2

**ABSTRACT:**

Technology is growing rapidly and the automotive industry is no stranger to this. Collision warning systems are the need of the day be it for human driver assistance or for autonomous cars. Collision detection currently is being done using technologies like radar, lidar, ultrasound etc which are very costly and hence we don’t see them in our regular cars. The motivation behind this project is to build a cost-effective solution based on computer vision. The vehicle dash cam footage is to be processed and warning should be issued well ahead of a probable collision. Convolutional Neural Networks(CNN) is employed which has shown great accuracy in identifying objects. A Convolutional Neural Network is used to detect cars and pedestrians which a vehicle encounters on the road. Running a neural network on video input using CPU is very slow, so GPU instance on cloud is used which greatly accelerates our deep learning application. Tracking distance is then estimated from our car with the help of bounding box detected on the object. An imminent collision can thus be predicted well ahead of its time, so that the driver can brake or manoeuvre the vehicle out of danger. This project is done using Ubuntu 16.04, Google ComputeEngine(Google Cloud Platform),Python 3.5,CUDA and openCV.

Internal guide:BY

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