North South University

CSE465: Pattern Recognition and Neural Network

Section: 04

Project Proposal

Group Members:

Serial	Name	NSU ID
1	Zobaer Ahammod Zamil	2021796042
2	Md. Saiyem Raiyan	2012468042
3	Sheikh Mohammed Wali Ullah	2021186042

Topic: Object Detection in Self-driving Car

Problem Statement: Develop an object detection system specifically designed for self-driving cars. The system should be capable of identifying and localizing various objects in real-time, enabling the self-driving car to make informed decisions about its navigation and behavior on the road. It is very important to detect objects for self-driven cars. Here, we will try to detect objects nearest to the car, which will help the self-driving cars to make decisions smoothly. It will also help to reduce the accident rate. We will use pre-trained image classification models to detect objects. We will try to optimize this model to get better results.

The object detection system must operate in real-time, providing timely information to the self-driving car's control system. The system should achieve high accuracy in detecting and classifying different types of objects commonly found on the road, such as pedestrians, vehicles, traffic signs, traffic lights, cyclists, and obstacles. The system's effectiveness will be evaluated based on accuracy, processing speed, and localization precision.

Technology: To solve this problem and make the self-driving car smoothly operate, we will use –

1. ViT (vision-transformer)
2. Pytorch