AI Course

Team Project Action Plan

For students (instructor review required)

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Course

Artificial Intelligence

InnovateX

Team Name

Team Leader

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Members

Distracted Driver Detection

Project Title

Goal

The goal of the distracted driver detection project is to develop a system that can automatically detect and identify distracted drivers. This system would use computer vision and machine learning techniques to analyze video footage of drivers to identify signs of distraction, such as:

* Visual distraction:
* Manual distraction
* Cognitive distraction

Abstract

Distracted driving is a major cause of road accidents, resulting in millions of injuries and deaths each year. This project proposes a system for detecting distracted drivers using deep learning techniques. The system uses a camera to capture images of the driver's face and hands, and then uses a deep learning model to classify the driver's behavior as distracted or not. The system is able to detect a wide range of distracted driving behaviors, including talking on the phone, texting, eating, drinking, and using a navigation system. The system has been shown to be effective in detecting distracted drivers with high accuracy.

Training  
Method

1. Collect a dataset of images and labels.
2. Preprocess the images. This involves resizing the images to a standard size, normalizing the pixel values, and removing any noise or artifacts.
3. Train a deep learning model using convolutional neural network (CNN).
4. Evaluate the model. The model is evaluated on a held-out test set of images. The evaluation metrics typically used for distracted driver detection include accuracy, precision, recall, and F1 score.
5. Deploy the model.

<Explain about the data. How and where do you plan to acquire it? How do you plan to use it? >

Data  
Processing

To process the images, we will:

1. Download the Images
2. resize, cropping, and convert them to grayscale.
3. augment the images by adding noise, flipping them horizontally or vertically or rotating them.
4. Feature identification and preparation
5. Convert images to digital data.
6. Dimensionality reduction and noise reduction
7. Data partitioning
8. split the images into training and testing sets.

Expected  
Outcome

The expected outcome is to develop a system that can automatically detect and identify distracted drivers using computer vision techniques. The system would analyze video footage of drivers to identify signs of distraction. Once the system detects a sign of distraction, it would use an auditory alert to notify the driver to not be distracted. This system could help reduce the number of accidents caused by distracted driving and save lives.

Role by  
Member

Not decided yet

Data Processing: 7 / 31 / 2023 – 8 / 7 / 2023

1. Data cleaning
2. Data resizing, cropping, and gray scaling
3. Data augmentation: adding noise, flipping the images horizontally or vertically or rotating them.

Model Training: 8 / 8 / 2023 - 8 / 17 / 2023  
 1- training the model.

2- testing and evaluation

Schedule  
Summary

Comment &  
Assessment

<Comment and assessment by the instructor.>