AI Course

Team Project Final Report

For students (instructor review required)

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| Distracted Driver Detection |

<8/8/2023>

InnovateX

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1. Introduction

1.1. Background Information

Distracted driving is a major problem that contributes to millions of car accidents and injuries every year. In the United States, one in five car accidents is caused by distracted driving. This translates to 425,000 people injured and 3,000 people killed by distracted driving every year. The first DDDR projects using AI were developed in the early 2000s. These projects were relatively simple and could only detect a few types of distractions. However, recent advances in AI have led to the development of more sophisticated DDDR projects that can detect a wider range of distractions. Overall, AI has the potential to make a significant contribution to the development of distracted driver detection systems. As the technology continues to improve, AI-based systems will become more accurate, scalable, and cost-effective. This will make them more widely available and effective in preventing accidents.

1.2 Motivation and Objective

The motivation behind the distracted driver detection project using AI is to enhance road safety and reduce the number of accidents caused by drivers who are distracted while driving. Distracted driving is a significant problem worldwide, and it includes activities such as texting, talking on the phone, eating, or using in-car technologies while operating a vehicle. These distractions can significantly impair a driver's ability to react to hazards and increase the risk of accidents.

The objective of the distracted driver detection project is to develop an AI-based system that can accurately identify and classify instances of distracted driving in real-time. By analyzing various data sources, such as video feeds from in-car cameras or sensors, the AI model can detect signs of distraction, including head movements, eye gaze patterns, hand gestures, and other relevant cues.

1.3 Members and Role Assignments

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| --- | --- |
| **Team Member** | **Role** |
| Meshal Aldajani | Data Cleaning | Data Labeling | Model Training |
| Abdullah Alsaab | Data Augmentation | Model Training |
| Martada Albaik | Data Splitting | Model Testing | Model Deployment |
| Ghassan Alward | Data Normalization | Model Testing |
| Sara Alahmari | Data Preprocessing | Model Testing |
| Ruba Almohya | Data Collection | Model Training |

1.4 Schedule and Milestones

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| --- | --- | --- |
| **Date** | **Task** | **Milestones** |
| 31/7/2023 | Data Collection |  |
| 1/8/2023 – 5/8/2023 | Data Cleaning |  |
| Data Augmentation |  |
| Data Splitting |  |
| 6/8/2023 – 9/8/2023 | Data Normalization |  |
| Data Pre-processing |  |
| Data Labeling |  |
| 10/8/2023 – 16/8/2023 | Model Training and Testing | ✓ |
| 14/8/2023 – 16/8/2023 | Model Deployment | ✓ |

2. Project Execution

2.1 Data Acquisition

2.2 Training Methodology

2.3 Workflow

2.4 System Diagram

3. Results

3.1. Data Preprocessing

3.2 Exploratory Data Analysis (EDA)

3.3 Modeling

3.4 User Interface (Interface).

3.5. Testing and Improvements.

4. Projected Impact

4.1. Accomplishments and Benefits

4.2 Future Improvements

5. Team Member Review and Comment

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| <ATTACH A TEAM PICTURE HERE> |

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| NAME | REVIEW and COMMENT |
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6. Instructor Review and Comment

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| --- | --- | --- |
| CATEGORY | SCORE | REVIEW and COMMENT |
| IDEA | \_\_/10 |  |
| APPLICATION | \_\_/30 |  |
| RESULT | \_\_/30 |  |
| PROJECT MANAGEMENT | \_\_/10 |  |
| PRESENTATION & REPORT | \_\_/20 |  |
| TOTAL | \_\_/100 |  |