 page1image11203376

**Project Initialization and Planning Phase**

|  |  |
| --- | --- |
| Date | 9 March 2024 |
| Team ID | SWTID1720019244 |
| Project Title | Traffictelligence: Advanced Traffic Volume Estimation with Machine Learning |
| Maximum Marks | 3 Marks |

**Project Proposal (Proposed Solution) template**

This proposal outlines a transformative approach to traffic management using machine learning. By harnessing the power of intelligent algorithms, we aim to significantly improve traffic flow, optimize commutes, and enhance overall transportation efficiency. The system will address longstanding challenges like congestion and unpredictable travel times, leading to a safer, smoother, and more predictable driving experience for everyone. Core functionalities include real-time traffic analysis, predictive congestion alerts, and dynamic route optimization – all powered by machine learning.

|  |  |
| --- | --- |
| **Project Overview** | |
| Objective | Our primary objective is to revolutionize traffic management through the implementation of cutting-edge machine learning algorithms. This intelligent system will analyze vast amounts of traffic data to gain real-time insights and optimize traffic flow, leading to significant improvements in efficiency and safety. |
| Scope | This project encompasses a comprehensive overhaul of the traffic management system. We will leverage machine learning to analyze real-time and historical traffic data. |
| **Problem Statement** | |
| Description | The current traffic management system suffers from limitations that hinder its effectiveness. Inaccurate traffic data and inefficient response to changing conditions lead to congestion, unpredictability and safety issues. |
| Impact | This project tackles current traffic woes with machine learning. We aim to optimize traffic flow, improve predictability, and boost safety through:Real-time traffic analysis, predictive congestion alerts, dynamic route optimization |
| **Proposed Solution** | |
| Approach | We'll harness machine learning to analyze traffic data in real-time. This will allow us to predict congestion, provide up-to-date traffic insights, and recommend dynamic routes - all leading to a smarter traffic management system. |
| Key Features | We'll leverage machine learning to analyze real-time and historical traffic data, gaining valuable insights into traffic flow and patterns. |

**Resource Requirements**

|  |  |  |
| --- | --- | --- |
| **Resource Type** | **Description** | **Specification/Allocation** |
| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | T4 GPU |
| Memory | RAM specifications | 12.5 GB |
| Storage | Disk space for data, models, and logs | Cloud 100 GB storage |

|  |  |  |
| --- | --- | --- |
| **Software** | | |
| Frameworks | Python frameworks | Flask |
| Libraries | Additional libraries | scikit-learn, pandas, numpy, matplotlib, seaborn, xgboost |
| Development Environment | IDE, version control | Google Colab, Jupyter, Git |
| **Data** | | |
| Data | Source, size, format | Kaggle dataset, (48204, 8), csv |