EcoCommute

PROJECT PROPOSAL

Software Design and Analysis

Course Teacher

Submitted by:

EcoCommute Project Proposal

Title

EcoCommute: Sustainable Carpooling Solution for University Communities

Scope

EcoCommute is a web-based carpooling platform designed to address transportation challenges within university communities. The project aims to develop a comprehensive solution that reduces parking space requirements, traffic congestion, and carbon emissions while fostering community connections and providing cost-effective transportation options.

Previous work in this domain includes various ride-sharing apps and carpooling websites. However, EcoCommute differentiates itself by focusing specifically on university communities and incorporating features tailored to student and staff needs.

The project will cover:

- Development of a user-friendly web interface
- Implementation of a robust backend system
- Integration of mapping and route optimization algorithms
- Creation of a point-based reward system
- Implementation of gender-specific ride options
- Development of a flexible pricing model

The project does not cover:

- Mobile app development (initial phase)
- Integration with university management systems
- Real-time traffic data integration

Objective

The main objectives of EcoCommute are:

1. Reduce parking space requirements on university campuses
2. Decrease traffic congestion in and around university areas
3. Lower carbon emissions associated with university commutes
4. Foster community connections among university members
5. Provide a cost-effective and flexible transportation option for students and staff
6. Implement a reward system to incentivize regular carpooling

Problem Statement and Description

Universities often face significant challenges related to transportation and parking. Limited parking spaces lead to frustration among students and staff, while increased traffic causes delays and potentially impacts attendance. Also, the environmental impact of many single-occupancy vehicles contributes to the university community's carbon footprint.

EcoCommute addresses these issues by providing a user-friendly carpooling platform specifically designed for university environments. By connecting drivers with riders, the system helps reduce the number of vehicles on the road, thereby alleviating parking pressures and traffic congestion. This not only saves time and reduces stress for commuters but also contributes to a more sustainable campus environment by lowering carbon emissions.

The platform's flexibility in terms of scheduling, routing, and pricing makes it an attractive option for various user needs. By incorporating safety features such as gender-specific ride

options and a rating system, EcoCommute aims to build trust within the community and encourage widespread adoption.

Languages and Tools

The EcoCommute project will utilize the following technologies:

- **Frontend**: HTML, CSS, JavaScript
- **Backend**: Python
- **Database**: SQL or MongoDB
- **Version Control**: Git
- **IDE**: Visual Studio Code
- **API Integration**: Google Maps API or other API (for routing and mapping)