CSE492 ENGINEERING PROJECT PROPOSAL FORM

Date: CSE 492 Registration Semester:

Make sure that you have registered to the CSE492 course via OBS before filling out this form.

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CSE 492 registration type (Mark one of the following choices) :

☒ Regular Ders) ☐ Single Course (Tek Ders) ☐ Supplementary Course (Ek ☐ Extended

Project Title	Smart Telemetry for Usage-Based Insurance
Abstract (200 words)	This project proposes a telematics-based insurance prototype that gathers driving data from smartphone sensors, detects aggressive maneuvers (e.g., sudden braking, rapid acceleration, speeding), and computes a personalized risk score. By analyzing these metrics in real time, the system can dynamically adjust premiums to reward safer drivers and encourage better driving habits. The solution comprises an Android application for data acquisition, a backend service employing threshold-based or machine learning algorithms for risk evaluation, and a lightweight interface for visualizing results. Key objectives include scalability, cost-effectiveness, and user-friendliness, emphasizing how data-driven insights can reshape traditional insurance models. This approach not only incentivizes responsible driving but also demonstrates how digital transformation and analytics may reduce accidents and enhance overall road safety.

Hardware constraints: (PC, Apple, mobile phone, other device, etc.)

Android smartphone, standard PC, no specialized hardware.

Software constraints: (Operating System, Progr. Languages, Libraries, API's, IDE's etc)

Android OS, Kotlin, Python, scikit-learn, Flask or Node.js, Android Studio, optional external APIs. Java,

Evaluation criteria (Quality Measurements, Scalability, Error Rate, etc)

Accuracy of risk scoring, performance, scalability, reliability, user satisfaction.

Design Methodology Diagrams

☒ Use Case Diagrams ☒ Class Diagrams ☒ Sequence Diagrams ☐ State Diagrams

Impact area

☐ Health ☐ Environmental ☐ Security ☒ Social / ☐ Ethical Sustainability ☒ Productivity ☐ Other:_____

Project Advisor Name, Surname, Signature:	Academic Advisor Name, Surname, Signature:
Onur Demir	Tacha Serif