EAT40005 Engineering Technology Projects A

Individual Work Log

PROJECT NAME:	OBD-II Based Predictive Maintenance System		
STUDENT NAME:	**Dang Khoa Le**		
STUDENT ID:	**103844421**	**WEEK # (& dates covered):**	**#5**

TASKS	STATUS	TIME SPENT	ACTION ITEM/NOTE
Weekly client presentation (missed due to team miscommunication)	Not Completed	0.5 hours	Team unaware of weekly presentation requirement, lack of planning and preparation. To fill up the gap of the presentation, I spent effort to go through and demonstrating the Jupyter Notebook works that I have done
Independent work on Jupyter Notebook – dataset collection, model testing and evaluation	Completed	6 hours	Collected 4 datasets (different vehicle types and manufacturers), EDA, model training, correlation analysis, identified XGBoost as best performer, examined major features that most correlated to the degradation of vehicles
Client feedback session and presentation skill reflection	Completed	1 hour	Client advised on better technical communication structure and business-oriented presentation style
Organized team meeting to address miscommunication	Completed	1 hours	Apologized to client and supervisor, planned clearer weekly deliverables and strategies
Defined 6-sprint timeline with task allocation	Completed	1 hours	Improved project planning, milestone setting, task distribution
Sensor selection and budget planning	In-progress	1 hour	Evaluated various OBD-II hardware options and estimated cost, purposing allowance request from the unit
Team-wide dataset revision and model workflow review	In-progress	1.5 hours	Improved team's technical understanding and project alignment
External dataset research and model enhancement studies	In-progress	1.5 hours	Explored enhancements to predictive model and training techniques
TOTAL WEEKLY TIME SPENT		**13.5 hours**	

TASKS PLANNED FOR NEXT WEEK	EXPECTED COMPLETION
Procure OBD-II devices after budget confirmation	Week 6
Setup Raspberry Pi or laptop-based OBD-II connection	Week 6-7
Standardize CSV format and key features	Week 6-7
Refine model training workflow and accuracy	Week 6-8

Summary/weekly reflection for Week 5:

- Key Tasks Done:
Faced project delivery gap due to team-wide misunderstanding about weekly client presentations. I independently conducted advanced research through the Jupyter Notebook by downloading and analyzing four distinct datasets related to vehicle diagnostics and maintenance prediction. Applied EDA, data preprocessing, and various model training (Random Forest, XGBoost, etc.). Identified XGBoost as the most suitable model due to its high accuracy, feature interpretability, and consistent performance. Evaluated correlations between vehicle telemetry data and failure likelihood.

- Key Learning:
Learned the importance of owning up to delivery issues and proactively bridging gaps. Improved understanding of predictive maintenance model architecture. Gained insight into tailoring technical presentations for non-technical stakeholders (business value, clarity, outcome focus). Practiced translating raw model outputs into actionable insights for client-facing scenarios.

- Literature/Resources Reviewed:
Explored machine learning techniques (XGBoost, Random Forest, LSTM), data correlation frameworks, vehicle health diagnostics literature. Reviewed best practices for presenting ML results to non-technical audiences.

- Issues Faced:
Miscommunication led to missed deliverable. Some datasets had missing values or irrelevant features that required deeper cleaning. Time was needed to upskill team members technically.