Temasek Polytechnic

School of Informatics & IT

**Diploma in Big Data & Analytics**

MP Terms of Reference

**Project Particulars**

|  |  |
| --- | --- |
| **Organization Name** | AUTO MACHINERY SINGAPORE PTE LTD |
| **MP Supervisor** | Mr Poh Ming Fu |
| **Project Title** | AI-Enhanced RFQ and Inventory Mining System |
| **Student Matric Card Number** | 2304278A |
| **Student Name** | Nathaniel Cheong Samad |

**1. Introduction**

AUTO MACHINERY SINGAPORE PTE LTD faces challenges in identifying spare motorcycle part, especially when customers come in with vague requirements. The staff must rely on their past experiences or manual references to identify the spare parts needed. Locating spare parts in stock heavily relies on senior employees, making this process difficult and very time consuming.

This project aims to focus on OpenAI/GenAI, RAG (Retrieval-Augmented Generation), machine learning for image recognition, Python libraries, and a Streamlit to create an intelligent and interactive RFQ and Inventory Mining System for Motorcycle Parts.

**2. Objectives**

* Develop an AI-powered interface to streamline RFQ (Request for Quotation) workflows and improve the motorcycle parts search experience for internal staff and customers.
* Enable intelligent inventory mining from motorcycle parts catalogues (e.g., Honda, Yamaha), extracting structured data including images from PDFs.
* Use RAG and GenAI to provide intelligent recommendations, suggest common pairings (parts affiliation), and identify procurement opportunities.
* Build a seamless and visually rich Streamlit interface for search, recommendations, e-basket generation, and dashboard analytics.

**3. Scope of the Project**

* Import the unstructured data from PDF manuals into a database
* Develop a Search GUI to search and filter spare parts
* Create a e-basket system to store the spare parts
* Forecast demand for spare parts needed
* Suggest other parts for related items

**4. Project Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task no | Description | Start Date | End Date | Duration (Weeks) |
| 1 | Meet up with users to firm requirements | 21 Apr | 4 May | 2 |
| 2 | Learn materials required for development | 5 May | 18 May | 2 |
| 3 | Development | 19 May | 29 Jun | 6 |
| 4 | Live Demo – Execution of Dashboard | 30 Jun | 6 Jul | 1 |
| 5 | UAT/Bug Fixes/Future Enhancement | 7 Jul | 20 Jul | 2 |
| 6 | Finalize Documentation for project | 21 Jul | 3 Aug | 2 |