Indus Solution

### Project Proposal

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[19-June-2023]

# **Introduction**

The project idea is to develop an industry service that caters to the needs of various industries by providing essential resources and services. The service aims to streamline the process of acquiring resources such as petrol, diesel, and mechanics for repairs, making it more convenient and efficient for industries. Additionally, an online platform will be developed to facilitate easy booking and cancellation of these resources. By offering a centralized solution, the industry service aims to improve operational efficiency and reduce downtime for industries.

# **Objective**

The objective of this project is to develop an industry service platform that provides convenient and efficient access to essential resources like petrol, diesel, and mechanics for repairs. The platform will offer online booking and cancellation features, streamlining the process for industries and reducing downtime.

# **Problem Description**

In the current industrial landscape, industries often face challenges when it comes to acquiring essential resources such as petrol, diesel, and mechanics for repairs. The traditional process of sourcing these resources can be time-consuming, inefficient, and prone to delays, leading to increased downtime and operational disruptions.

The proposed industry service platform aims to address these problems by providing a centralized platform for industries to easily book and access these resources. By offering online booking and cancellation functionalities, the platform streamlines the resource acquisition process, saving time and effort for industries.

Moving from manual resource procurement to an online platform brings several benefits. Firstly, it provides industries with a convenient and efficient way to access the required resources, eliminating the need for manual coordination and multiple phone calls. Secondly, it offers transparency by displaying real-time availability and pricing information, enabling industries to make informed decisions. Additionally, the platform allows industries to manage their bookings and make adjustments as needed, providing flexibility in their resource planning.

Designing such a platform requires careful consideration of various factors. User experience and interface design should be intuitive and user-friendly to ensure ease of use for industries. The platform should also integrate a reliable and secure payment system to facilitate seamless transactions. Furthermore, the platform needs to establish a strong network of trusted suppliers to ensure the availability of quality resources.

By developing a fault-tolerant system, the platform can mitigate the risks associated with potential resource unavailability or service disruptions. This ensures that industries can rely on the platform for their resource needs, minimizing the impact of unforeseen circumstances and reducing downtime.

Overall, the industry service platform addresses the challenges faced by industries in procuring essential resources, offering convenience, efficiency, and reliability in their resource acquisition process.

# **Methodology**

**Platform Development:** The first step is to develop a user-friendly and secure online platform for the industry service. This will involve using App development technologies such as Flutter and Dart, along with a backend framework like Flutter or Dart. The platform will incorporate features like user registration, resource browsing, online booking, and cancellation.

**Supplier Network:** Establish partnerships with reliable suppliers and service providers of petrol, diesel, and mechanics. This will involve conducting thorough market research, vetting potential partners, and negotiating agreements. Creating a robust supplier network will ensure a steady supply of resources for industries.

**Online Booking System:** Implement an efficient online booking system that allows industries to select their desired resources, specify the quantity, and choose preferred service dates and times. This system will need to handle real-time availability, provide confirmation to users, and update the resource inventory accordingly.

**Resource Management:** Develop a resource management system to track and monitor the availability, quality, and maintenance of petrol, diesel, and mechanic services. This system will ensure that industries are provided with reliable and well-maintained resources.

**Fault-tolerant Design**: Implement a fault-tolerant design for the platform to handle unexpected failures or disruptions. This may involve implementing redundancy measures, backup systems, and error handling mechanisms. Utilizing cloud-based infrastructure and distributed systems can enhance fault tolerance.

**User Feedback and Iteration:** Gather feedback from industries and continuously iterate on the platform based on user insights. This will involve conducting surveys, user testing, and incorporating user suggestions for improvements. It will help in refining the platform and addressing any usability or functionality issues.

While specific algorithms or third-party libraries are not mentioned in the methodology, their inclusion will depend on the specific technical requirements and implementation details of the project. Considerations such as data storage, authentication, and payment processing may require the use of appropriate algorithms or libraries to ensure security and efficiency.

# **Project Scope**

The scope of the project includes the design and development of an industry service platform that facilitates the online booking and access of essential resources like petrol, diesel, and mechanics for industries. The platform will provide a user-friendly interface, secure payment options, and real-time availability updates. The project will also involve establishing partnerships with reliable suppliers and service providers to ensure the availability and quality of resources.

However, the project scope does not include the physical infrastructure for storing or distributing resources like petrol and diesel. The focus is on providing a digital platform to connect industries with the necessary resources and services.

Additionally, the scope does not involve the development of proprietary resources, such as petrol or diesel supply networks. The project assumes the availability of reliable suppliers and service providers in the market.

Assumptions that dictate the system's evolution may include assuming the availability of internet connectivity for industries to access the platform and assuming industries will have the necessary hardware and devices (computers, smartphones, etc.) to access the platform.

The project scope does not extend to specific technical details such as the communication media or networking protocols. These details are considered implementation details that can be determined during the development phase.

Overall, the project scope focuses on the design and development of the industry service platform, ensuring a seamless online booking and access experience for industries while connecting them with reliable suppliers and service providers.

# **Feasibility Study**

i. **Risks Involved:**

**Technical Risks:** There might be technical challenges in developing a robust and scalable platform, integrating various functionalities, and ensuring seamless communication between industries and suppliers. These risks can be mitigated by conducting thorough research, utilizing established frameworks and technologies, and regularly testing the platform during development.

**Supplier Reliability**: A risk involves the reliability and consistency of the suppliers and service providers in terms of resource availability, quality, and timely delivery. This risk can be addressed by conducting due diligence in selecting partners, establishing clear agreements and service level expectations, and implementing mechanisms for feedback and monitoring.

**User Adoption**: There is a risk that industries may be resistant to adopting a new online platform for their resource needs. To mitigate this, it is important to emphasize the benefits, convenience, and cost-effectiveness of the platform. Additionally, gathering user feedback during the development process and incorporating user-centric design principles can help enhance user acceptance.

**ii. Resource Requirements:**

**Computing Resources**: Depending on the scale of the project and expected user traffic, computing resources such as servers, databases, and cloud infrastructure may be required to host and manage the platform. The specific resource requirements will depend on factors like anticipated user base, data storage needs, and performance expectations.

**Development Resources**: Skilled developers proficient in web development frameworks, such as Flutter or Dart for the frontend and Dart for the backend, will be required. Additionally, UI/UX designers, database administrators, and quality assurance personnel may be needed to ensure a well-rounded development process.

**Partnership Resources**: Establishing partnerships with reliable suppliers and service providers will require dedicated resources for conducting market research, negotiating agreements, and ongoing relationship management.

**Testing Resources**: Adequate testing resources will be necessary to ensure the platform's functionality, performance, and security. This may include test environments, automated testing tools, and dedicated testing personnel.

To meet the project schedule, it is essential to allocate the required resources effectively, maintain regular communication and collaboration among team members, and monitor progress closely to address any potential challenges promptly. Conducting a thorough risk assessment and having contingency plans in place will also help mitigate potential risks and ensure the project stays on track.

# **Solution Application Areas**

The industry service platform project has real value and can benefit various industries and application domains. The target domain for this solution includes industries that rely on essential resources like petrol, diesel, and mechanics for their operations. Some potential application areas and industries that can benefit from this solution are:

**Manufacturing Industry:** Manufacturing companies often require a steady supply of petrol or diesel for their machinery and vehicles. The platform can provide a streamlined process for ordering and scheduling fuel deliveries, ensuring uninterrupted production and reducing downtime.

**Transportation and Logistics Industry**: Logistics companies heavily rely on fuel for their vehicles. The platform can enable them to easily book and track fuel supplies, ensuring efficient operations, cost management, and minimizing fuel-related disruptions.

**Construction Industry:** Construction companies often require access to mechanics for equipment repairs and maintenance, as well as fuel for machinery. The platform can offer a convenient way to book mechanics and schedule fuel deliveries, allowing construction projects to proceed smoothly without delays caused by equipment breakdowns.

**Power Generation Industry**: Power plants require a consistent supply of fuel, such as diesel or petrol, for backup generators or auxiliary equipment. The platform can assist power generation companies in managing their fuel inventory, scheduling deliveries, and ensuring fuel availability during critical situations.

**Agricultural Sector**: Farms and agricultural businesses may require diesel or petrol for their machinery, such as tractors or irrigation systems. The platform can provide a user-friendly interface for farmers to book fuel deliveries and efficiently manage their agricultural operations.

In these application areas, the industry service platform can provide the following benefits:

**a. Convenience:** Industries can easily access and book essential resources online, eliminating the need for manual coordination and saving time and effort.

**b. Cost-effectiveness:** The platform can help industries find competitive prices for resources, enabling them to optimize their operational costs.

**c. Reduced Downtime:** By streamlining the process of acquiring resources and services, industries can minimize downtime caused by unavailability or delays, ensuring smoother operations and increased productivity.

**d. Improved Efficiency:** The platform facilitates efficient resource management, allowing industries to better plan and schedule their operations, resulting in improved overall efficiency.

**e. Enhanced Supplier Network:** Industries gain access to a wider network of reliable suppliers and service providers, ensuring a consistent supply of high-quality resources.

By addressing the specific resource needs of various industries, the industry service platform can bring tangible value and positively impact their operations and bottom line.

# **Tools/Technology**

**Hardware:**

Mobile,Laptop,PCs,Tablets

**Programming languages:**

Java/Kotlin/Flutter/Dart

**Database:**

MySQL, PostgreSQL, or firebase: Relational or NoSQL databases for storing user data, bookings, and other relevant information.

**Development and Testing Tools:**

Integrated Development Environments (IDEs) like Visual Studio Code, Eclipse, Sublime text, Android studio

# **Expertise of the Team Members**

Our team comprises of two members including Sattiwan kumar, Rohan kumar and our project advisor Sir Adeel Karim. Both the members have basic knowledge of database creation, android development and documentation. In addition, both members intend to learn courses that are relevant and required for the project.

# **10. Milestones**

**Requirement Gathering and Analysis:**

Conduct research on industry requirements and pain points.

Identify key functionalities and features needed in the industry service platform.

Create a context diagram and actor-goal matrix to define the stakeholders and their goals.

**Platform Design and Architecture:**

Design the overall architecture of the platform, including frontend and backend components.

Create wireframes and mockups for the user interface.

Define the data models and database schema.

**Supplier Network Establishment:**

Research and identify reliable suppliers and service providers.

Establish partnerships and agreements with suppliers.

Set up mechanisms for supplier onboarding and quality verification.

**Frontend Development:**

Develop the frontend components of the industry service platform using selected frameworks (e.g., Flutter or Dart).

Implement user interface design based on wireframes and mockups.

Integrate necessary functionalities such as resource search, booking forms, and user management.

**Backend Development:**

Build the backend server using Flutter and Dart.

Implement APIs for resource booking, user authentication, and data management.

Integrate payment gateway for secure transactions.

**Database Integration and Management:**

Set up and configure the selected database system (e.g., MySQL, PostgreSQL, or Firebase).

Develop database schemas and implement data storage and retrieval functionalities.

Ensure data security, integrity, and scalability.

**Online Booking System:**

Implement a robust online booking system that allows industries to search, book, and manage their resource requests.

Enable real-time availability updates and notifications for industries and suppliers.

Develop mechanisms for tracking bookings and generating booking history.

**Testing and Quality Assurance:**

Conduct comprehensive testing of the platform, including unit testing, integration testing, and user acceptance testing.

Identify and fix any bugs, performance issues, or usability problems.

Ensure the platform meets the defined requirements and user expectations.

**Deployment and Launch:**

Prepare the platform for deployment on selected cloud infrastructure

Configure server environments and ensure proper setup of dependencies.

Perform final testing and quality checks before the official launch.

**User Feedback and Iteration:**

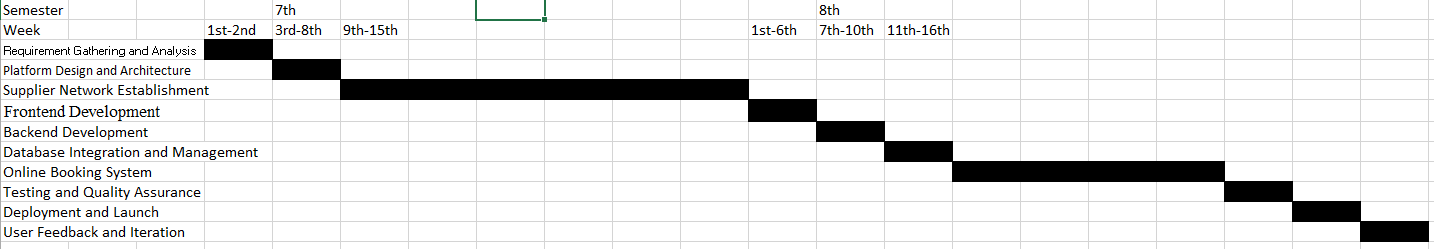
Gather feedback from industries and users on their experience with the platform.

Analyze feedback to identify areas of improvement and prioritize enhancements.

Iterate on the platform based on user insights to continually enhance the user experience.

These milestones provide a general framework for the major tasks/sub-tasks to be accomplished throughout the 1-year project. The timeline for each milestone can be determined based on the project's specific requirements, available resources, and team capabilities.

# **Project Schedule**



Preliminary 1-Year Project Timeline:

Requirement Gathering and Analysis: 1 month

Platform Design and Architecture: 2 months

Supplier Network Establishment: 1 month

Frontend Development: 3 months

Backend Development: 3 months

Database Integration and Management: 2 months

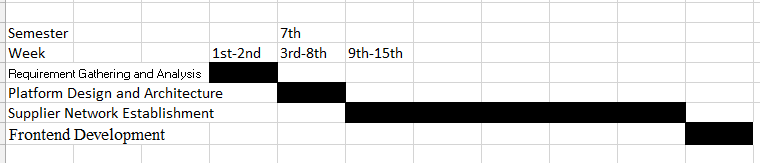
Online Booking System: 2 months

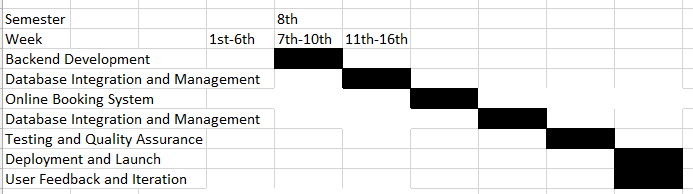
Testing and Quality Assurance: 1 month

Deployment and Launch: 1 month

User Feedback and Iteration: Ongoing throughout the project

# **Work Breakdown Structure**





Include Fall Semester:

Phase 1: Requirement Gathering and Design

Week 1: Conduct industry research and gather requirements

Week 2: Define project scope and create context diagram and actor-goal matrix

Week 3: Create wireframes and mockups for the user interface

Week 4: Finalize platform design and architecture

Phase 2: Development

Week 5-8: Frontend Development

Week 5: Set up the development environment and create basic UI components

Week 6: Implement resource search functionality

Week 7: Develop booking forms and user management features

Week 8: Implement user authentication and payment gateway integration

Week 9-12: Backend Development

Week 9: Set up the backend server and database

Week 10: Implement APIs for resource booking and management

Week 11: Develop notification system and integrate with frontend

Week 12: Perform integration testing and bug fixing

Spring Semester:

Phase 3: Testing and Deployment

Week 1-4: Testing and Quality Assurance

Week 1: Conduct unit testing for frontend and backend components

Week 2: Perform integration testing and identify bugs

Week 3: Conduct user acceptance testing and gather feedback

Week 4: Address issues and improve performance and usability

Week 5-6: Deployment and Launch Preparation

Week 5: Prepare the platform for deployment on cloud infrastructure

Week 6: Finalize server configuration and perform deployment testing

Phase 4: User Feedback and Iteration

Week 7-14: Continuous Improvement and Iteration

Week 7-14: Gather user feedback, prioritize enhancements, and make iterative improvements based on user insights