**Executive Summary:**

In an era where mobility is essential, the availability of real-time information can significantly impact daily routines and decisions. One such critical aspect is the accessibility of fuel. As vehicles traverse through urban landscapes and long journeys, the need for fuel becomes a pivotal concern.

This software application named “FuelTrack” addresses the frustration and inconvenience often associated with refuelling by providing users with up-to-the-minute data on nearby petrol stations, their fuel prices and the current queue situation as well as what amenities are available.

This report will explain the background, features and outline of the project. By harnessing the power of technology to streamline the refuelling process, this application aims to empower users with informed choices, minimise time wastage, and enhance overall driving experiences. As the world continues to embrace digital solutions, this application stands at the intersection of convenience, efficiency and modernity to reshape how to approach refuelling in an increasingly fast-paced world.

**Background:**

The modern world’s reliance on transportation is linked to the availability of fuel. Making petrol stations vital nodes in our daily lives. However, locating the nearest petrol station with acceptable fuel prices and manageable queues has become a challenge for drivers. Traditionally, finding a suitable petrol station has been trial and error approach, with drivers having to rely on outdates methods such as online maps that may not have real-time data. Additionally, the lack of information about fuel prices can lead to unexpected expenses for drivers, while waiting in long queues can waste time especially during peak hours. This also leaves the driver with uncertainties about where and when to refuel.

By recognising these challenges, the development of this application, “FuelTrack”, to address these pain points emerged as a logical solution. Leveraging the advancements in real-time data processing, this application capitalises on the power of information. The arrival of advanced technologies, including GPS navigation, mobile apps and real-time updates, has opened up opportunities to overcome these challenges effectively. This innovation not only caters to individual drivers but also contributes to the optimisation of traffic flow and the reduction of fuel wastage associated with unnecessary detours and long wait times. This application, “FuelTrack” capitalises on these technologies to create a user-friendly solution.

**Outline of Project:**

To address the varied requirements of users and transform the refuelling experience, the software application incorporates a range of innovative features that seamlessly combine a cutting-edge technology with user-focused design. By focusing on real-time information, user customisation and intuitive navigation, the software application, “FuelTrack”, aims to provide an unparallel solution to the challenges associated with locating suitable petrol stations. The following features stand at the core of this experience:

* Location Tracking
* Real-time Data Integration
  + Fuel Prices Information
  + Queue Status
* Map Integration
* Amenities Information
* Notification System
* User Reports

Location Tracking is an important feature of the application as it assists users in finding the closest petrol station. It would enable the application to determine the user’s current geographical position accurately. This information is vital for identifying the nearest petrol station. By pinpointing the user’s location, the application can provide a list of nearby petrol stations, eliminating the need for users to manually search or rely on outdated maps.

Real-time data integration is another feature that is crucial for this application for several reasons such as accuracy and relevance. Fuel prices and queue lengths at petrol station can fluctuate frequently due to the market. Real-time data integration makes sure that users receive the most accurate and up-to-date information available which allows them to make an informed decision based on current conditions rather than outdated or inaccurate data. Another reason would be to allow the user to make optimal decision making as drivers tend to make rapid decisions about where to refuel based on factors such as distance and fuel prices. Real-time data integration allows the user to make optimal decisions that align with their preferences leading to better utilisation of resources.

Map integration is vital for this application as it provides a visual representation of the physical world, allowing users to understand the spatial relationship between petrol stations and their proximity to the user’s current position. It allows the user to make informed decisions about which petrol station to choose based on convenience and distance. Furthermore, map integration enables users to navigate to their selected petrol station with ease. User would also benefit real-time route optimisation, ensuring they reach their chosen station efficiently without getting lost. Maps would be able to display real-time queue information in a spatial context. This visual representation helps users quickly identify the stations with shorter queues.

Another feature that would be included is the amenities available at each petrol station. This adds another layer of convenience and customisation for users, enhancing their overall experience in locating and selecting a suitable petrol station. This is important as different users have varying preferences when it comes to refuelling stops. Some may prioritise access to toilets, shops or car wash services. By adding this feature, the application supports these diverse preferences, allowing users to choose petrol stations that align with their needs. This feature helps the application become a useful resource for drivers. Users would be able to find the nearest petrol station as well as the additional services which saves them the hassle of making multiple stops. Incorporating amenities information into the application enhances it utility, making it an indispensable tool for drivers seeking not only fuel but also a complete refuelling and resting experience.

A notification system is vital for this application due to its ability to enhance user engagement, convenience and overall effectiveness. Petrol prices and queue lengths can change rapidly. By having this feature within the application, it allows the users to receive instant updates regarding these changes. This allows the users to always have access to the latest information, helping them make timely decisions about where to refuel. This feature would give users proactive information as the notifications could alert users when fuel prices at their preferred stations drop or when queue lengths become manageable. This allows the users to save money as well as avoid long wait times. The notification system would be convenient as the application may not be opened at all times, the users would be informed regardless whether they are using the app or not. This ensures that the users receive critical information without constantly checking the application manually. In emergency situations, such as fuel shortages or price spikes, notifications can inform users promptly, enabling them to adapt their plans accordingly. A notification system transforms the application from a tool to an active assistant that delivers vital information to users, helping them navigate their refuelling needs more efficiently.

User reports play a pivotal role in enhancing the functionality and accuracy of the application. Within the feature, users would be able to provide real-time feedback about the accuracy of fuel prices and queue information they encounter. If there are outdated information, user reports can highlight these issues, prompting actions to correct them in order to maintain data accuracy and reliability. Allowing user to actively participate by submitting reports encourage a sense of ownership and engagement with the application. When users see their contributions are making a difference, they are more likely to trust and rely on the application. User reports provide a two-way communication channel between the application and its users. It ensures data accuracy, empowers users to actively participate and drive improvements.

**Conclusion:**

Based on a comprehensive analysis, the development of the “FuelTrack” software application is deemed feasible. The software addresses a genuine need and offers value to users by providing real-time fuel prices and queue information for petrol stations. With a well-designed user interface, sound technical implementation, and a viable revenue model, “FuelTrack” holds the potential to achieve success in the market.

This feasibility report serves as a foundational document for informed decision-making regarding the development and launch of the “FuelTrack” software application. Further detailed planning, development, and testing are recommended to ensure the software’s efficacy and user satisfaction.