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**FEASIBILITY STUDY  
SRS DOCUMENT  
WBS**

## 1.

### Feasibility Study

The primal purpose served by the feasibility study includes a systematic assessment of a proposed project (which is a research project in this case), idea or an anticipated venture to determine its practicality and potential for success.

It is a quintessential section which acts as a risk management tool that helps to identify potential challenges and opportunities that may arise prior to significant resources are invested in the same.

Key purposes of a feasibility study for this project mainly includes:

- Evaluating the demands- This encompasses the public demands that are primarily
  - Rerouting the vehicles to safer road if roads are of single lane, muddy, full of potholes inclusive of all kinds of road obstructions.
  - Avoid rerouting of vehicles to paths or roads passing through criminally infamous spots, slums or involving any kind of risk factor.
  - Avoid recommending lonely roads at night where it could be crisis to spot a garage, petrol pumps, or receive a logistics help in case of a breakdown.
- Judging the financial viability and potential return on investment (ROI)- The project would be majorly government funded since it involves information sharing with local government databases and involves majorly the government sectors as mentioned in the stakeholders section where the stakeholders of every sector have been mentioned in detail. Still the private organisations in need of hour which may provide services at need like software development or data sharing and integration may play a role in funding and expecting a share in the project as a return.
- Identifying varied potential risks that may arise over time- This may include some resource constraints like lack of availability of information, bugs in the software and data insights, botch in the human work and lack of funds. Still all these are manageable at certain levels and can expect a positive output in the end.

- Dispensing stakeholders with valuable information to make informed decisions which may arise over time depending on the based and unbiased circumstances at the moment of need in the evolving stages of project.

Multiple people from varied backgrounds come up together to play assorted roles from diverse domains in the group of key stakeholders.

Some of the pivotal key stakeholders are as follows:

Internal stakeholders:

- Employees - The team would comprise of a group of developers, research analysts dealing with big data and vehicle re routing problems with APIs, government employees dealing with ongoing traffic database, police officials with criminal records of crimes in the past 1 month occurred on a street, cloud based data practitioners and experts in traffic management.
- Managers - These individuals would work on shaping the strategies of marketing and spreading the word of the project being developed. Also they would a decent organisation traction for efficiency. They would also be playing a role in initiating the project and driving its feasibility analysis.
- Owner / Chairman - The biggest shareholder of the project and the primal person to deal with all final decisions and enabling the work at every stage and aspect of the project and the main visionary of the project.

External stakeholders:

- Shareholders - Every investor and board of directors has a particular amount of share of the project developed which they may sell or buy at varied instances but still the owner / chairperson being the largest shareholder. Investors may expect either a return value from the investment they make or demand a share of the project.
- Government - Government bodies enforcing regulations that the project must comply with would include police department to supply the information and enforcement of the law, law ministry for manifesting needed laws, ministry of road and transports and finance ministry.

- Society - It would include all sorts of customers and users who will benefit from the project's outcome which is a safer and faster route for passing their vehicle through and ensure utmost safety.
- Suppliers - It would include a group of organisations varying from all sorts of domains like roadways database providers, criminal record providers, live time traffic congestion information providers which may be utilised in the project and for the information supplied they expect a certain profit from it.
- Communities - Individuals or organisations potentially impacted by the project which in turn are users and customers for a safer and faster route for a hassle free travel.
- Partners - It may mostly include investors who are generally the individuals or organisations providing financial resources for the project expecting some sort of return from the project which may be a direct profit in form of shares or a certain promised value.

Coming to the feasibility assessment, notable points to mention are the cost benefits analysis, technical feasibility and the operational feasibility. The descriptive narration of the aforementioned points with respect to the project is as follows:

Cost-benefit analysis - This section deals with the project's quantifying potential costs related to project development which would include project's development, operation and maintenance and also the benefits like revenue generated and social impact of the project to determine if the project justifies the investment.

Assessing the technical feasibility- The main objective of this procedure is to assess the availability of required technology, expertise and resources to develop and implement the project successfully. Already a considerable work has been done for rerouting the vehicles but this project is an evolved form of the same where an additional layer of security and safety is being adjoined in the domain of pathway rerouting for minimal security and safety breach of the public. Thus the technical feasibility isn't a point of concern as we have already the core working algorithm and only certain modifications are needed to keep our project going [Tech mentioned in SRS].

For instance we may assume certain approximate values for the each of the following sections of the project which includes project development cost to be Rs. 10 Lakhs which comprises of the working software, responsive website, integrated maps and navigator, and a

working application which can be efficiently used by the user. We can expect the government to work for us at minimal or no cost since it is for public project which involves government funding us to ensure public safety and security.

The operation and maintenance cost would be 90% managed by the government since it is a for public project ensuring public safety and security with a government funding label, rest 10% would be done by our side from the profits that we reap from our shares in the project.

The benefits would be reaped significantly from both ends that is government and private sectors majorly in form of shares since government would be liable primarily for the funding and operation and private firms would be responsible for certain aspects of the project which may range from software development to data and information sharing.

Some recommendation that can be considered based on the project may be a Pilot project considering a smaller-scale pilot to test the concept, gather data, and refine the approach. Also we should be keeping our stakeholders continuously engaged for feedbacks and buy-in throughout the process for a successful endeavour.

## 2. SRS (Software Requirement Specification) Documentation

1	Name of the Project	Enhanced Vehicular Rerouting on Location Discernment
2	Objective/Vision	<ul style="list-style-type: none"><li>• Create an interactive and responsive website/application that is integrated with navigation applications to enable users to choose a safer and better pathway for travel.</li><li>• Provide a user-friendly interface for individuals to make the application easier to be used.</li></ul>
3	Users of the system	<ul style="list-style-type: none"><li>• Anyone trying to choose the path for travel using navigators.</li></ul>

1	Name of the Project	Enhanced Vehicular Rerouting on Location Discernment
4	Functional Requirements	<ul style="list-style-type: none"> <li>• Users should be able to choose a suitable path based on their demands.</li> <li>• The website should provide customised path options also notifying the user of potential dangers if chooses to ignore the pathway recommended by the app.</li> <li>• The website should generate reports and statistics of the user's location, travel history, tracking the progress of the user's travel and distance.</li> <li>• Users should be able to seamlessly modify their pathway with multiple locations if needed.</li> </ul>
5	Non-functional requirements	<ul style="list-style-type: none"> <li>• The app must be available 24×7, ensuring users can access the website/application at any point of time.</li> <li>• Data security measures must be in place to protect user's personal information.</li> <li>• The app should be designed for scalability to accommodate a growing user and dealer database.</li> </ul>
6	Optional Features	<ul style="list-style-type: none"> <li>• In-app notifications for pathway updates when the application is not being used.</li> </ul>
7	User Interfaces Priorities	<ul style="list-style-type: none"> <li>• Ensure the website is compatible with all operating environments.</li> <li>• Conduct thorough testing on various devices and screen sizes to guarantee a seamless user experience.</li> </ul>
8	Reports	<ul style="list-style-type: none"> <li>• The website should generate daily users activity and revenue generated through ad-sense if enabled or the hours used to guarantee a successful endeavour to the government for funds.</li> </ul>

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9	Other Important Issues	<ul style="list-style-type: none"> <li>• Users should receive responses to their inquiries or feedback within an hour.</li> <li>• Regular updates to pathway modifications or the new roadways created which are more feasible.</li> </ul>
10	Team Size	<ul style="list-style-type: none"> <li>• An exact estimate of number of people involved cannot be predicted since the project would involve different sectors of government, law enforcement and their employees.</li> <li>• Still the core members could potentially contain 70-90 members including developers, UI/UX designers, heads of the government and law enforcement ministries, financial experts, ethical hackers and testers, pathway and database experts, civil engineers and satellite experts.</li> </ul>
11	Technologies to be Used	<ul style="list-style-type: none"> <li>• MERN stack implementation (Mongo Db, Express Js, React Js, Node Js, HTML, CSS, Javascript) for a full stack web development ensuring perfect front end as well as a strong back end with perfect encryption.</li> <li>• Integration technologies for app integration with the navigation devices/apps. Potentially with Algorithms of a strong OOPs language (C++, JAVA)</li> <li>• SUMO (Simulation of Urban MObility)</li> <li>• MATLAB</li> </ul>
12	Tools to be Used	<ul style="list-style-type: none"> <li>• Visual Studio Code, Github, Bard AI, GPT-4, sci-hub (for accessing research works).</li> </ul>
13	Constraints	<ul style="list-style-type: none"> <li>• The application may recommend a longer and less efficient route to the user but far safer and secure than the same.</li> </ul>

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14	Final Deliverable Must Include	<ul style="list-style-type: none"> <li>• An efficiently working application that would deliver the safest route possible for the user to manoeuvre through.</li> <li>• Point of contact of the company and government and vice - versa for government for any related relevant issues.</li> <li>• Source code of the project.</li> <li>• Backup of the user data and app databases.</li> </ul>

### 3. WBS (Work Breakdown Structure)

