University of Dhaka

Department of Computer Science and Engineering

Project Proposal:
CSE-3112: Software Engineering Lab

Project Title:
Meramot : Comprehensive Tech Services and Supports

Team Members:

Abdullah Ibne Hanif Arean
Roll: FH-12
Registration No: 2019-917-795

Mahmudul Hasan
Roll: AE-20
Registration No: 2019-917-803

Table of Contents

1 Statement of the Project (Product)

1.1 Statement of the Project (Product)

"Meramot: Comprehensive Tech Services and Supports" is an innovative, web-based platform that provides a one-stop solution for all your technology problems. Whether you're facing software or hardware issues, our interactive platform allows you to easily post and resolve your problems with ease in both Bangla and English. Plus, With locally operated on-demand doorstep paid Servicing with live tracking of “Service Order” and live chat with certified professionals, we make it easy for you to get the tech support you need, when you need it. It will simplify and streamline your tech support experience, making it more convenient, reliable, and efficient.

1.2 Justification

The project aims to fill up a gap in the market by providing a locally operated platform that caters to the needs of both technical and non-technical individuals in Bangladesh. The platform will be available in both Bangla and English, and will offer a one-stop solution for all technology-related issues, including software and hardware problems. The platform will increase the availability of Bangla resources, which will be beneficial for local people with non-technical backgrounds. Additionally, the platform will be staffed by certified professionals and provide support, troubleshooting, and repair services, as well as a convenient and efficient consulting system for service ordering and tracking. It addresses the lack of locally-operated tech support platforms and the heavy dependence on repair shops in Bangladesh, which often have unqualified technicians and charge unnecessary fees to non-technical users. With increasing numbers of computer users, the market size for this type of service is expected to grow every year.

1.3 Objectives and Goals

The project aims to provide a comprehensive web-based technology service and support platform in both Bangla and English, offering a one-stop solution for all technology-related issues, including software and hardware problems. The platform will feature an interactive interface for posting and resolving issues, as well as on-demand local doorstep paid servicing with live tracking and live chat support. Additionally, it will have a fully functioning question answering webapp where public can read everything but only users can post problem, answer, and upvote and downvote. A live chatting system with a tech expert assigned by us to discuss about the problem free of cost will also be available. The platform will also allow booking a service for doorstep service and come to our pick up point for service and our app keeps track of every track of service with cash on delivery or online payment. In the long-term, the platform plans to use AI and machine learning to give solution to any tech problem posted. The project's goal is to provide a comprehensive and convenient solution for technology-related issues and to improve the question answering webapp with the help of AI and machine learning in the long-term.

1.4 Achievement and Benefits

This project will bring a number of benefits and achievements, such as:

- Providing a comprehensive and convenient solution for technology-related issues.
- Helping establish a big business in a market that is currently scattered.
- Familiarizing the team with the tools and technologies used for enterprise-scale solutions.
- Improving reliability and scalability of the platform in the long run.
- Creating a one-stop solution for public users that addresses any tech-related problems.
- Providing a platform for users to access tech services and support in their native language enriching the web resources of Bangla.
- Educate People and Make it easier for using technological stuff.
- Hassle free system of tech support which is reliable and money effective as well.

2 Project Background

2.1 Technical background

The Meramot project will be developed using various technologies and tools. The technical background of the project includes:

Spring Boot to develop the server-side of the platform.

IntelliJ IDEA as the integrated development environment (IDE) for developing the server-side of the platform. Postman to fetch data from the server and test the endpoints of the server. Spring Security to ensure the security of the system. **ReactJS** to build the web interface of our application. **Visual Studio Code** as the IDE for building the webapp. We will use **PostgresSQL** as database and Datagrip as DBMS IDE. Probably we'll use AWS for hosting our server and client side application.

2.2 Commercial Background

The size of the Local ICT market excluding telecom in Bangladesh is estimated to be USD1.54 billion (approx.) [1]. Bangladesh's export earnings from computer-related services in FY22 is $592 million where $38 million from computer consultancy services. It also earned $10 million from installation, maintenance, and repair of computers and peripheral equipment services. [2]. According to the Bangladesh Bureau of Statistics (BBS) survey, there are 38.9% internet users in the country. It is also known from the survey of Bangladesh Bureau of Statistics and ICT Department that currently 89.9% of individuals use mobile phones, of which 30.9% use smartphones. The use of mobile phones at the household level is 52.2%. At the individual level, among 7.4% of computer users, 63.1% of them are not interested in using the internet. 61.8% of them have their own mobile while only 1.4% know programming or coding.[3]. By providing a local platform for technical support and services, we can also tap into the potential of the ICT market in Bangladesh and contribute to the

growth of the economy. By providing a comprehensive and user-friendly platform, we aim to bridge the gap between technical and non-technical individuals and make technology accessible to all. provide a comprehensive and user-friendly platform for addressing technology-related issues. By providing a free space for individuals to find solutions to their technical problems and a platform for helping others, the project will attract a large number of users, tub into paying customer.. This will not only benefit individual users but also improve the overall technical knowledge and skills in the country.

2.3 Scientific background

In terms of the question answering feature of the platform, it will require knowledge of relevant hardware and software technology, as well as an understanding of troubleshooting techniques, so that the platform can accurately answer questions and provide solutions to users.

Additionally, the project will be implementing a Machine Learning (ML) based solution to provide instant solutions to users' problems. This will require knowledge of ML techniques and algorithms, as well as an understanding of how to train and test ML models. The system will have to understand the problem and provide or suggest a solution based on its learning.

Overall, the Meramot project will require a strong scientific background in computer science, as well as knowledge of relevant hardware and software technology, troubleshooting techniques, and machine learning. This knowledge will be crucial for developing a platform that is robust, reliable, and efficient, and that can provide accurate solutions to users' problems.

3 Project (Product) description

3.1 Product perspective

The product perspective of the Meramot project is to provide a comprehensive and convenient technology service and support platform that addresses all technology-related issues, including software and hardware problems. The platform will be available in both Bangla and English, and will feature an interactive interface for posting and resolving issues, as well as on-demand local doorstep paid servicing with live tracking and consulting support.

The platform will have a fully functioning question answering webapp where public can read everything but only users can post problems, answer, and upvote and downvote. A live chatting system with a tech expert assigned by us to discuss about the problem free of cost will also be available. Additionally, users will have the option to book a service for doorstep service and come to our pick up point for service and our app keeps track of every track of service with cash on delivery or online payment.

In the long-term, the platform plans to use AI and machine learning to give solution to any tech problem posted. The goal of this project is to provide a comprehensive and convenient solution for technology-related issues and to improve the question answering webapp with the help of AI and machine learning in the long-term.

The platform will have four different types of users: public users, registered users, technicians and regulators. Public users can only see the problem and solution, registered users can post problem, hire technicians, give feedback, upvote/downvote other solutions, contact/chat with technicians, and so on. Technicians will have the same opportunity as registered users and in addition they can earn money by solving the problem. Regulators will be responsible for regulating all the problems and solutions, observing the delivery process, assigning technicians and taking responsibility of financial activities.

Overall, the product perspective of the Meramot project is to provide a comprehensive, convenient and user-friendly platform for addressing technology-related issues and to improve the question answering webapp with the help of AI and machine learning in the long-term. It will target the non-technical individuals who are in need of technical support in their native language and will cater to all the needs of the users.

3.2 General capabilities

The Meramot project will require several capabilities in order to be implemented successfully. The project will require knowledge of several programming languages including Java, JavaScript, and Python. This will be necessary for developing the server-side and client-side of the platform.

In addition to programming languages, the project will also require knowledge of specific frameworks and technologies such as Spring Boot, React, and REST API. Spring Boot is a popular framework for building Java-based web applications and provides a wide range of features and tools for building a robust and efficient backend. React is a popular JavaScript library for building user interfaces and provides a wide range of features and tools for building dynamic and responsive web apps. REST API is a set of rules for building web services, it will be used to build the platform's API that will enable the communication between the front-end and the back-end.

Furthermore, good knowledge of databases such as **PostgreSQL**, **MongoDB**, and other NoSQL databases will be required to store and manage user data.

In summary, the Meramot project will require capabilities in various programming languages like Java, Javascript and Python, knowledge of frameworks and technologies such as Spring Boot, React and RESTAPI and Good knowledge of databases like **PostgreSQL** and MongoDB. This will enable the development of a robust and efficient platform that meets the project's objectives and goals.

3.3 General constraint

There are several constraints that will need to be considered when implementing the Meramot project:

Time constraint: The project will have a fixed deadline for completion, and it will be important to manage the project's schedule effectively to ensure that it is delivered on time.

Budget constraint: The project will have a fixed budget, and it will be important to manage costs effectively to ensure that the project stays within budget.

Technical constraint: The project will require advanced technical skills and knowledge in order to be implemented successfully. It will be important to ensure that the development team has the necessary technical capabilities to implement the project.

Data Privacy and Security Constraints: The project will handle a lot of user data, it will be important to ensure that the platform is secure and that user data is protected. This will require implementing standard security protocols and guidelines.

Scalability Constraints: The project aims to cater to a large number of users, it will be important to ensure that the platform can handle a large number of users and handle traffic spikes.

Language constraint: The platform will be in both Bangla and English, it will be important to ensure that the platform is accessible to users who are not fluent in either language.

Legal Constraints: The project will be subject to local laws and regulations, it will be important to ensure that the platform complies with all relevant laws and regulations.

Technical Debt: As the project will be using multiple technologies, it will be important to ensure that the platform is maintainable and that the development team is aware of the trade-offs of using different technologies.

3.4 User Characteristics

The project will have four different types of users:

Public Users: These users can enter the application and view problems and solutions posted by other users, but they cannot interact with the application such as posting a problem, hiring technicians, giving feedback, etc.

Registered Users: These users can post their problems to the application, hire technicians to solve their problems, give feedback regarding any problem, upvote/downvote other solutions, contact/chat with technicians, and so on. They can also take services and become customers of the platform.

Technicians: These users will have the same opportunities as registered users, in addition, they will be able to get hired by registered users to solve problems and earn money. The company will assign and certify technicians and they will need to subscribe to the company. These technicians will have access to available orders from customers.

Regulators: They will be responsible for regulating all the problems and solutions, observing the delivery process, assigning technicians and taking responsibility of financial activities. They will ensure that the platform is running smoothly and that all users are following the rules and guidelines.

3.5 Operational Environment

The project will be deployed and working in a web-based environment. This means that it will be accessible via a web browser on various devices such as computers, laptops, tablets and smartphones. The platform will be hosted on a web server and will be accessible to users via a URL or web address.

The web server will be running on a cloud-based infrastructure, which provides scalability and availability. This will allow the platform to handle a large number of users and handle traffic spikes. The platform will also be secured by following standard security protocols and guidelines to ensure the safety of user data.

The platform will be built using technologies that are compatible with the web-based environment, such as ReactJS for the front-end and Spring Boot for the back-end, so that it can work seamlessly with web browsers and web servers.

In summary, the Meramot project will be deployed and working in a web-based environment, accessible via a web browser on various devices. It will be hosted on a cloud-based infrastructure for scalability and availability, and will be built using web-compatible technologies for seamless performance.

It will be secured following standard security protocols and guidelines to ensure the safety of user data.

4 Innovation and Entrepreneurship

4.1 Innovation requirement

In order to accomplish the project, a number of innovations will be required. Firstly, a fully functioning web app question answering and live support tracking system that is robust, reliable, and easy to use must be coded. This will require innovation in the development of the technology to ensure its functionality and usability for the users.

Additionally, an extensive marketing strategy will be required to reach people and make them aware of the platform. This will include a wide range of online and offline marketing tactics to target the right audience.

Another important innovation required for this project is the development of an ML system that can predict an instant solution to any problem. The application will have to be trained to understand any problem from its symptoms provided by the users and predict solutions accordingly. This will require a significant amount of research and development to achieve.

Overall, the Meramot project will require a combination of technical and marketing innovations to develop a robust, reliable and easy to use webapp and to ensure that it reaches the right audience. The project will also require to develop an ML system that can predict an instant solution to any problem and that will be a key feature of the platform.

4.2 Entrepreneurship requirement

The project will require a significant level of entrepreneurship to ensure its success. In terms of marketing, it will be important to effectively promote the platform as a free solution for all computer-related problems. Entrepreneurial efforts can be used to encourage people by giving gifts for the highest contribution, and by assigning professionals to maintain and regulate the answer question sessions.

To provide servicing solutions, a strong supply chain of skilled manpower will be needed to receive and service customers based on their needs. This will require entrepreneurship in terms of identifying and hiring the right personnel, as well as developing a lab setup for working on Meramot orders.

In addition, starting the project will require some capital investment to build the necessary infrastructure. This will require entrepreneurial efforts to raise the necessary funds, whether through investments, loans, or other financial means.

Overall, the Meramot project will require a significant level of entrepreneurship to ensure its success, both in terms of marketing and servicing solutions. Entrepreneurial efforts will be needed to promote the platform, to hire the right personnel, to build a lab setup and to raise the necessary funds for infrastructure.

5 Conclusion

The project aligns with the concept of “Smart Bangladesh” which aims to provide access to information and communication technology to all citizens. By providing a comprehensive and convenient solution for technology-related issues in the native language, the Meramot project will help bridge the digital divide and empower non-technical individuals with the necessary technical support. Moreover, the use of AI and machine learning for providing instant solution to any tech problem will bring more efficiency to the platform, which will ultimately contribute to the development of digital Bangladesh. With the proposed features and services, the Meramot project has the potential to be a valuable resource for the citizens of Bangladesh and contribute to the country's digital development.

6 References

[1]http://www.sourcing-bangladesh.com/products/ict-and-it
[2]https://businesspostbd.com/tech/computer-service-exports-double-to-592m-in-fy22-2022-09-02
[3]https://www.dhakatribune.com/bangladesh/2022/12/29/internet-users-in-bangladesh-39-smartphone-users-31