Problem Statement and Feasibility Study

for

A3-TrackIt

Version 1.0

Prepared by

TeamNumber: 03

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
Version 1.0	BATTHALA VINOD KUMAR CHALLA SAKETH MASINA SAI BHARGAV TEJA SUDDALA VARUN UTTKARSH RAJ MOTURU MANOGNA	Feasibility report of the problem and problem solution are made.	16-01-2022

1 Problem Definition

This document provides the feasibility report of the project trackIt.After reading this report we can conclude on whether to continue implementing software and if it is actually worth doing this project.

1.1 Problem Statement

The user needs to track the different hardware items in his/her corresponding lab and get reports of all items' status. Users can also search for items, find where they are available, and can check if they are in working condition. Users also need to get information about a particular item on scanning QRcode of it or searching it by a unique id.

1.2 Relevance

Presently there is no record of hardware products used in different labs and no track of items that are not working or malfunctioning. Also when a user needs to use an item it's difficult to know where it is (which lab it is) and don't know for sure whether it is working or not. So this is a considerable problem where there is a wastage of time for users to have their work done and there is no proper track of items.

1.3 Background and Existing System

The lab faculty had found it difficult to maintain all the equipment details along with their working condition, location and they had to send manual reports to students, other faculty members, and HOD's. This problem has no current efficient solution and the details of items are stored in certain files which are difficult to access. The student if they want to know about any item has only way to enquire about it with the corresponding lab incharge.

2 Project Objectives

On completion of this project, the following objectives will be achieved:

- Lab admins can add all the details of equipment that are present in their lab and this list of all equipment can be viewed by all the users.
- Lab Admins can keep proper track of their corresponding lab items.
- Students can search for items and get their location information.
- Users get reports of all items present with their working status.
- Easy maintenance of all lab items.
- Any user can get the details of the devices by simply scanning the QR code associated with them instead of going around all the labs searching for them and also can get the list of equipment based on the department.

3 Feasibility Study

Feasibility analysis is used to determine the viability of an idea, such as ensuring a project is legally and technically feasible as well as economically justifiable. A feasibility study might uncover new ideas that could completely change a project's scope. It's best to make these determinations in advance, rather than to jump in and learn that the project won't work. Conducting a feasibility study is always beneficial to the project as it gives you a clear picture of the proposed project

In this feasibility study, we see the analysis of all our project's relevant factors including economic, technical, legal, and scheduling considerations to find out the likelihood of completing the project successfully. We finally conclude in doing this project or not and whether if it is actually worth doing this project.

3.1 Proposed Solution

Overview:

The main aim of the application is to ease the process of keeping records of the working and non-working machines in the department and labs and all the details associated with them like warranty period , who supplied etc.

An android application will be developed for keeping track of all the Lab equipment and machines in the labs and department.

The Provided features of the track it application will be:

- Qr code generator and scanner
    - Application will allow Lab admin to create a qr code for a machine with a unique id.
    - Application will also allow Lab admin to scan qr code to get all the important information related to the machine like warranty period , cost , who supplied it.

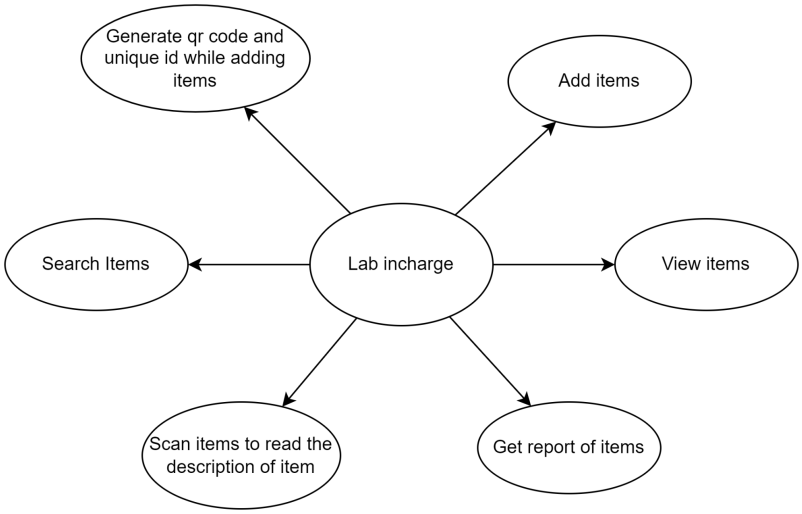
- Keeping record of all the lab equipments
    - Track it application will keep track of all the details of the machines and will always associate a unique id with it. it will contain all the data and data will be sorted in order of labs.
- Statistics at the end of semester
    - At the end of every semester a report will be generated about how many new machines are added to the lab and how many of them are working and how many of them are not functional.
- Data storage
    - Data will be securely saved in the cloud storage and all the data will be synced with with the cloud storage and will be available to all the HOD and the lab admins.
- One click product Registration
    - The product registration or lab equipment registration will be very easy to add to the product. It will just ask some basic details of the product like date of purchase, warranty period , cost of the product.
- Categorized list

A categorized list of all the products will be available like a list of working products , list of non working products, list of out of warranty products.

Users in different roles:

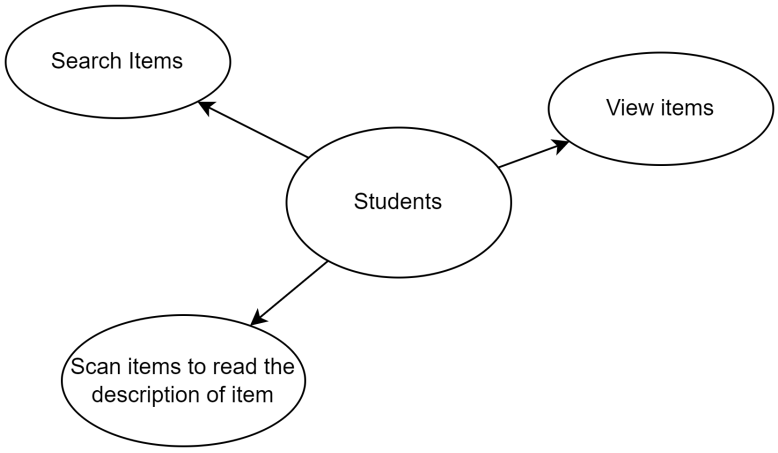
a.Lab incharge as user:

Lab incharge is corresponding to a lab.Login credentials are given to them to use the software.Lab incharges can add and register items by filling the details like name , warranty period,expiry date etc.The software produces unique id as well as qr code for every item.Incharges can stick the qr code or the id to the machines for unique identification.



b.Student as user:

Students can search for the items needed and can find where they will be available and their working status.Students can also scan an item qr code to know its specifications.



c.HOD as user:

HOD can view and has all permissions as lab incharge for all the resources to the corresponding branch .

Project Plan:

It was decided to use good Software engineering principles in the development of the system since there are many labs and many items to be tracked for search efficiency. So the following Project Plan was drawn up:

1. We will interact with the client to get the Requirements. As a part of this, the Requirements Specification Document will be created.

2. The requirements Specifications document will contain the Analysis & Design of the system & UML will be used as the modeling language to express the Analysis & Design of the System. It gives you a standard way to write a system's blueprints.

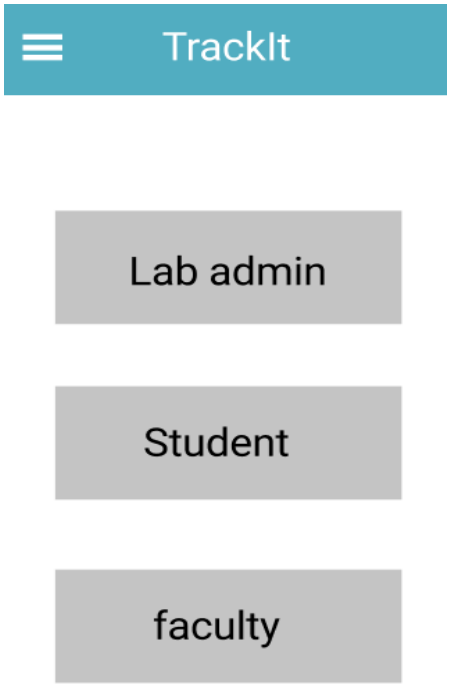
3. The Analysis, Design, Implementation & testing of the System itself will be broadly based on the principles of the Software Development process.

4. The Architecture & Technologies will be decided as a part of the Analysis of the requirements.

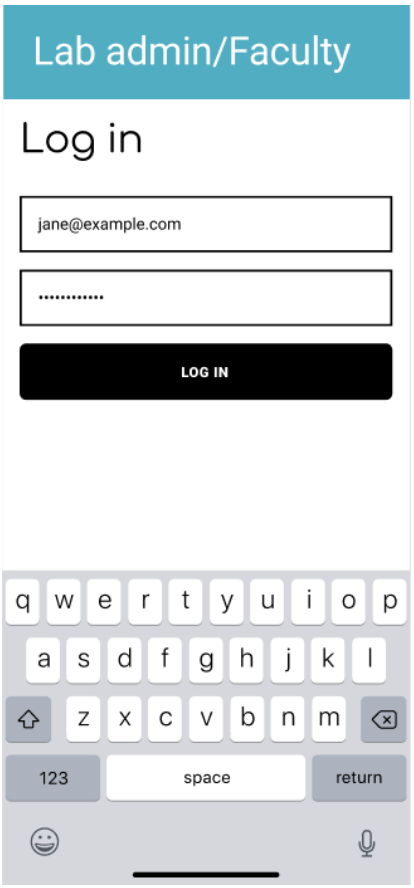
5. Once the Design is ready the Implementation & Testing strategy of the system will commence. Each will be independent of the other. The implementation of the system itself will be broken down into sub-systems following the Software Engineering principles for the development of robust software.

6. Once the implementation is ready, the System testing will take place. If the system is judged to be stable then Acceptance testing by the Users will take place & once the Users are satisfied the System will be rolled out to the Users & they will be trained on how to use it for an initial period.

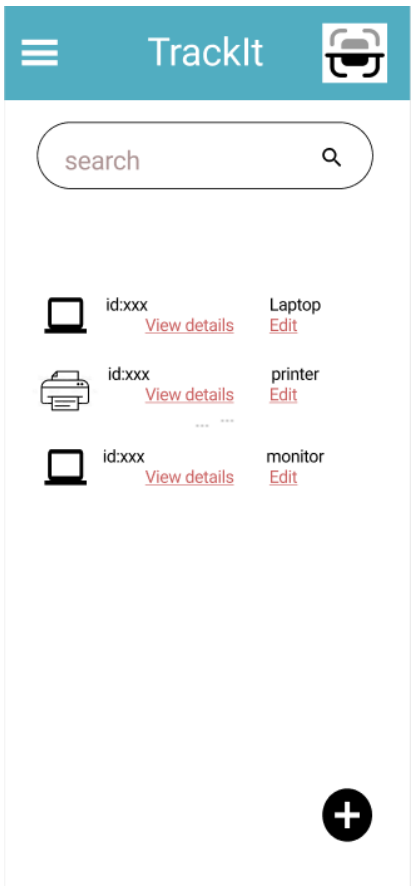
Prototype:



i)Home page

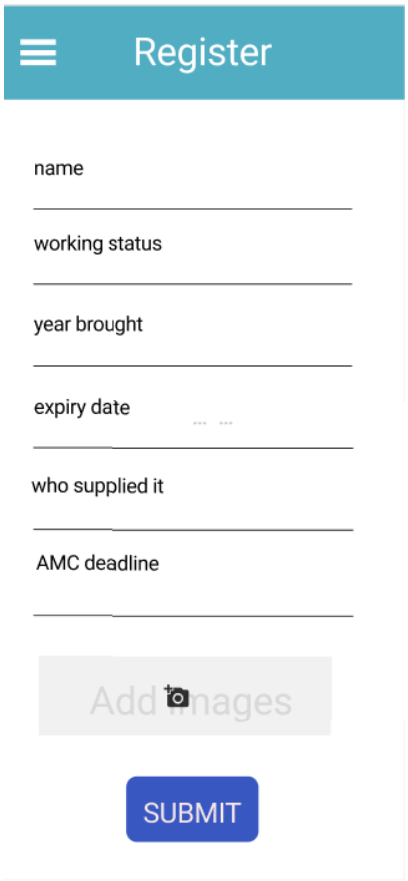


ii)Login page for admins

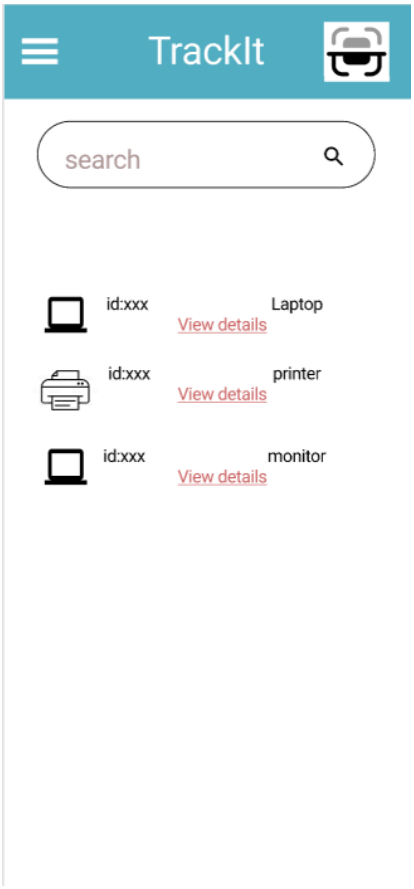


iii) Dashboard page for admins

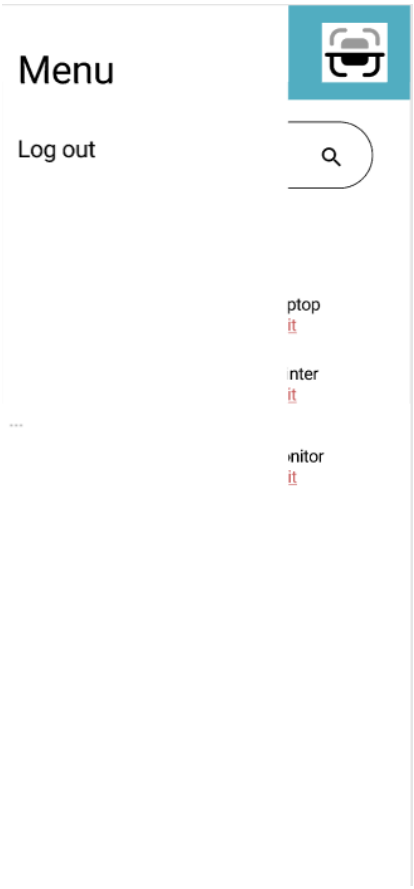
iv) Menu page for admins



v)Item registration page



vi)Student dashboard



vii)Menu page for student user

3.1.1 Economic Feasibility

Being an android application Trackit will not have an associated cost for hosting and for database at the initial time of the application but as the user base grow and the data grows there will be some cloud storage cost and it will be recurring cost and since there's no multimedia transfer, the bandwidth required for the operating of the application will be very low. Since the application will be used by college authorities, the application will follow the freeware software standards. No cost will be charged from the customers. The application will be only for NITC.

Application cost is low but there will be many benefits for the users. The Lab admin will be able to maintain all the data of the labs for all the working machines, non working machines and keep their track whether they are working or not or presently how many of them are there in the lab. The application will keep records of the date of purchase, who supplied the product , warranty ending date, annual maintenance date.The application will create a qr code which will be scanned by the application to get all the important information regarding that machine or product. It will reduce the paperwork that is used now to keep track of the records and will be a lot easier to maintain and it will be easy for HOD to see the reports generated by the application to get all important information regarding the lab.

3.1.2 Technical Feasibility

Track it is an android based application that will be able to run on all devices having android version 6 or above.

The main programming language and all other technologies and tools that we are going to use to make this android application are

- Android studio as IDE
- Flutter
- Firebase as database
- Operating System
  Windows / Linux / Mac
- Diagram tools
  Draw.io
- Git / Github

All of these software and technologies are freely available. The technical skills required for this project are manageable and can be learned in some time period. The project will be completed and will be submitted within the time limitation. In the beginning, the application will use a free database for the storing of data but later if the data increases there will be a need for a paid subscription. The bandwidth required for this application is very low since it requires data only to load all the reports and for admin. The required hardware for the implementation of this project is already available to us so there is no additional hardware requirement problem.

3.1.3 Risk Assessment

1. Risk associated with Technology
   - There could be a mismanagement of code and structure of the project as it is a team project for which version control (Git) will be used throughout the project.
   - All the technologies used are very well established and old enough but may be replaced by a new technology.

2. Risk associated with the Size
   - Being an android application with some basic functionality the storage required to store the application will be less.
   - In case if the database size increases there may be mismanagement of data but as the storage is always available on demand so the risk can be eliminated.

3. Risk associated with development environment
   - All the project management tools are easily available but may be replaced by new tools.

4. Risk associated with Project management
   - Any kind of changes in project description will be avoided after this point to reduce risk of project mismanagement.
   - All the code synced with the version control so there will be no lose of code in case of any hardware problem.

4 Conclusion

We have finally decided to take the project and try to complete it in time.Even though there are risk factors such as database overload and training people to use the application ,we think we can solve the issues by purchasing the extra space and using simple user interface to help users understand the application better and we hope to solve any bug issues later on if reported by the users ASAP.

Appendix A - Activity Log

Meeting Number	Date	Timings
1(with owner)	12-01-2022	12:30 – 1 PM
2	14-01-2022	7 – 8 PM
3	15-01-2022	9:30 – 11:30 PM

CONTRIBUTIONS:

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4	SUDDALA VARUN

User roles diagrams - Moturu Manogna,Batthala Vinod Kumar
Prototype diagrams - Batthala Vinod Kumar, Suddala Varun, Masina Bhargav Teja