LOG AUTOMATION AND POWER CONSERVATION

A REPORT

Submitted by

TEAM: AT-6

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING IN

INFORMATION TECHNOLOGY AND

ENGINEERING

THIAGARAJAR COLLEGE OF ENGINEERING, MADURAI–15

(A Govt. Aided ISO9001:2008 Certified Autonomous Institution, Affiliated to Anna University)

ANNA UNIVERSITY: CHENNAI 600025

AUGUST 2019

THIAGARAJAR COLLEGE OF ENGINEERING, MADURAI-15

BONAFIDE CERTIFICATE

Certified that this Report Titled **"Log Automation and Power Conservation"** is the bonafide work of **TEAM AT-6** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other work or conference or articles published.

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TEAM MEMBERS:

S.No	Name of the Team Member	Reg.No	Roles and Responsibilities
1.	**LAXAYADHARSINI S S**	18IT046	**PROJECT MANAGER** (Organizing and motivating the project team ,monitoring the progress ,ensuring the customer's satisfaction)
2.	**ABHIJITH V S**	18IT003	**PROJECT PARTNER (LAISON)** (Oversees and manages all communication between the team and other stakeholders)
3.	**SRILAKSHMI S S**	18IT092	**WEBMASTER** (Managing valuable collections of information)
4.	**SUDERSAN S**	18IT099	**FINANCIAL OFFICER** (managing and monitoring the amount of money we spend related to the project)
5.	**LAVANYA A S**	18IT045	**PROJECT ARCHIVIST** (preparation of report for the entire project)
6.	**THARUN P S**	18IT106	**PROJECT ARCHIVIST** (preparation of report for the entire project)

INTRODUCTION:

- Of all the problems facing mankind, conservation and prudent usage of electricity are the most pertinent, several solutions have been offered for the same but administering current supply at the behest of a required tally offers a quite promising solution at the institutional level.
- The solution proposed is made of a combination of the technologies used along with automation in logging. The person entering a room or office would be automatically logged and that controls the appliances in the room or office.
- Also consisting of automation for all the devices in the area of implementation.

SUSTAINABLE GOALS:

Our project comes under **Responsible Consumption and production .** People, we are responsible for energy consumption.We make it as a productive way.

APPLICATIONS/SOCIETAL NEED:

Understanding the social context:

- Supply,demand,transport,financial speculation,government regulation.
- Supply to keep up with demand, the fight against climate change, and the global trend toward urbanization
- Maximizing building efficiency, sustainability, & profitability for our clients nationwide.

MOTIVATION

· Loss and leakage of electricity and mean use of natural resources to generate electricity motivated to its conservation.

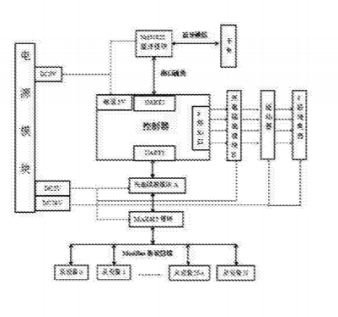
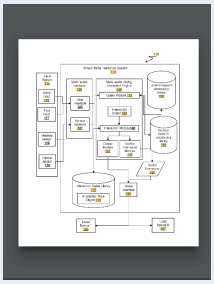
· Difficulty in finding the appropriate switch for an appliance in an auditorium and to avoid confusion thereby leading to the unattended working of the appliance for a long time.

· Difficulty in making available count for a particular lab hour and to cross verify the needs of logging.

LITERATURE REVIEW

S. No	Author	Title	Name of the Journal/ Conference	Volume/ Issue/Year	Algorithm/Method	Merits/ Demerits
01	Dr.Surabhi.et.al.,	Arduino based Remote Controlling	International Journal Of Science and Engineering Research	Volume 5, Issue 8, August - 2014	Open source hardware remote controlling	Remote controlling (requires input)
02	Sheetal Prutsy, et.al.,	Arduino based home automation using android application	International Journal Of Intelligent Computing and Applied Sciences	Volume 6, Issue 6, June - 2015	Based on Android application	Unable to be used by a person unknown(Not suitable for all)

PATENTS

PATENT NUMBER/FILE	INVENTOR	APPLICATIONS	DIAGRAM
CN205210576U	Guo Xong, Yuan Xu	Industrial Automation using Arduino	
US9230560B2	Farzad Ehsani,Slike Maren Witt-Ehsani,Walter Rolandi	Smart home automation systems and methods	

IDENTIFICATION OF COMMUNITY PARTNER AND STAKEHOLDERS

- Student-The technology improvement shall be known by every individual and improved laterally

- Faculty-The more we gain from our childhood will be surely till end who can implement and ensure the spreading all over the world.

- Lab technician-All hardware and software installations or maintenance will be known only by lab technician and the feasibility of implementation is known better by them.

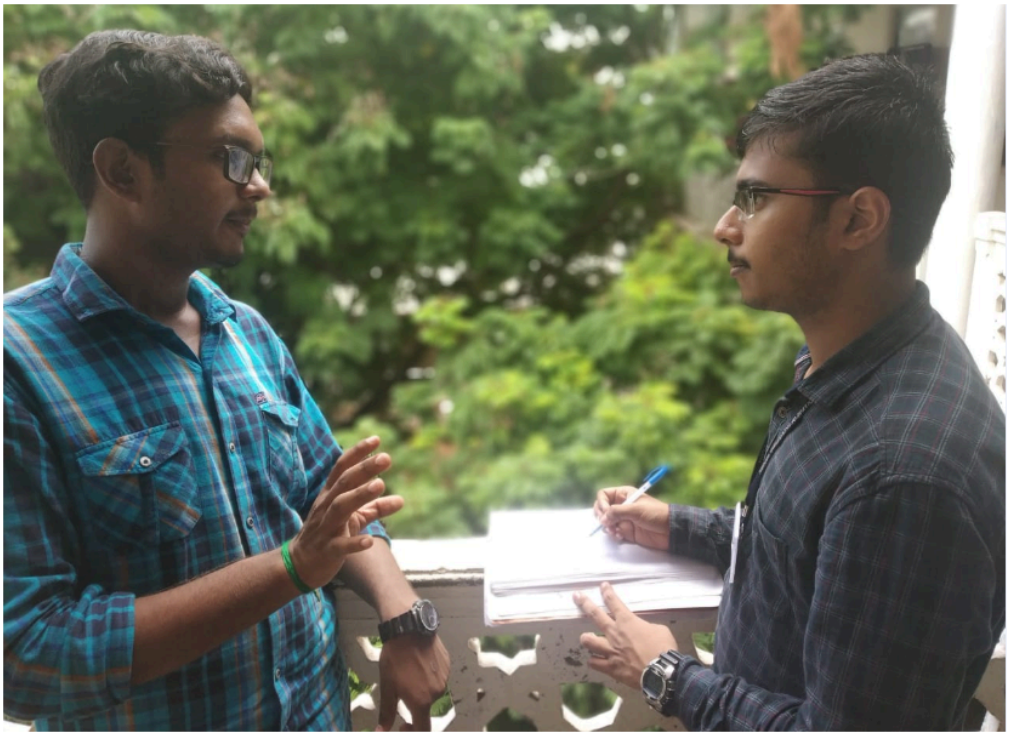
- Employee- Employee where the product gets to be implemented becomes a part of end user.

- People-Whether literate or illiterate ,they are the pillars for the implements who communicate about the products as in a good or worst model.

THE STAKEHOLDERS INTERVIEWED ABOUT OUR PROJECT ARE :

SH1. PUDUMALAR (MA'AM)
SH2. A.M.ABIRAMI(MA'AM)
SH3. ARUL PANDI(TECHNICIAN SIR)
SH4. NISHA ANGELINE(MA'AM)
SH5. KARTHIKEYAN(SIR-GUIDE)
SH6. SUDHARSAN(PEOPLE)
SH7. YOGITH(STUDENT)
SH8. PRASITHA(STUDENT)
SH9. ANOOP(PEOPLE)
SH10. YAJITHVISHWA(STUDENT)
SH11. YASHODHA(PEOPLE)
SH12. GANAPATHI(TECHNICIAN SIR)
SH13. DEISY MA'AM(HOD)
SH14. ABISHEK(STUDENT)

Stakeholder's Interview



Audio link :

- https://drive.google.com/file/d/0B3WqqmodokDAOGhHd2NzczBwNU8zV1VTSzFDUjdudkNWZ2Q4/ view?usp=sharing
- https://drive.google.com/file/d/1lBDF--OJ0k1goVtVKTKE2boPDwwwryXB/view?usp=sharing

Video link

https://drive.google.com/file/d/19RIencLrW2QLcKLoL8D64yDSrSOFbLM4/view?usp=drivesdk

Question set 1

1.What is your view about automation in our lab?
2.How does automation help in your work?
3.What difficulties do you face in log maintenance?
4.What if the log is automated?
5.Have you came across an automated device?
6.What's your suggestion about use of sensors?
7.Do you have any constraints in the use of sensors for this automation?
8.What type of sensors do you suggest for this project?
9. In what other places do you think this project can be implemented?
10.Do u think that the product is feasible?

Question set 2

1.What is your view about automation in our lab?
2.Do u think it will increase the success rate?
3.Can it be brought like web applications?
4.Can we implement for other usage?
5.How could we implement for other purposes?
6.In your perspective what will be the future if we implement?
7.How can we maintain?
8.How to correct the faults?
9.Is it good to bring like IOT device?
10.Do you want updates?

STAKEHOLDER'S REQUIREMENTS:

✔ Functional

1.To automatically switch on and switch off the electrical devices like Fan,Light.

2.Automation of log.

✔ Performance
1.Work efficiently - Irrespective of the number of users.
2.Face Recognition or Fingerprint
3.Reduce manpower.

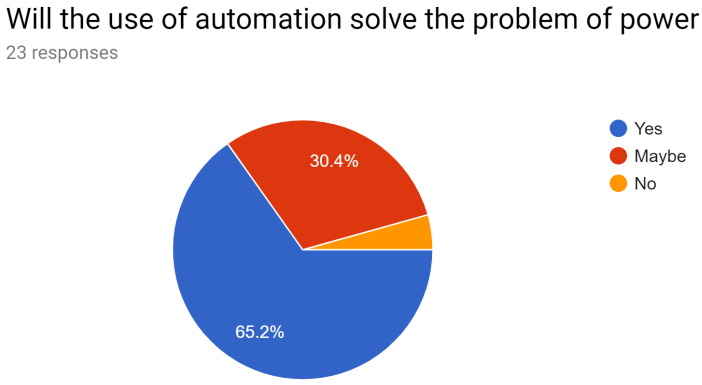
✔ Physical
1.Sensors fitted on chairs instead of fans.
2.Implemented in places like Auditoriums,Libraries.
3.RFID cards

✔ Economical
1.Electricity bill
2.Minimal number of sensors

✔ Technical
1.Motion sensors instead of ultrasonic sensors.
2.IR sensors.
3.RFID cards.

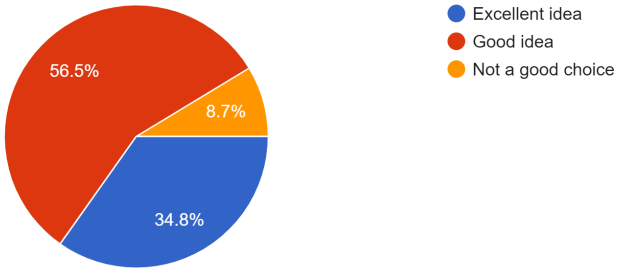
✔ Environmental
1.Not make environmental impacts.
2.Not emit radiations.

Voice of customer



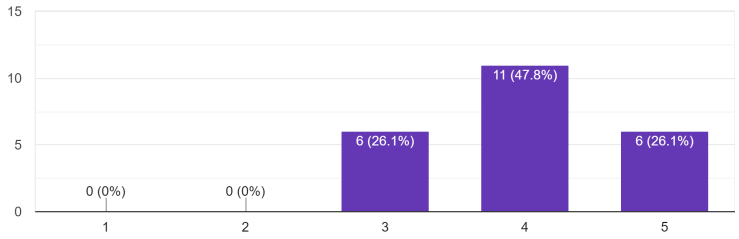
What if sensors like Ultra sonic sensor are used?

23 responses



What is your suggestion regarding automation of Log count automation?(Give rating 1-Poor idea, 5-Excellent idea)

23 responses



If not a good choice any suggestion would you like to provide?

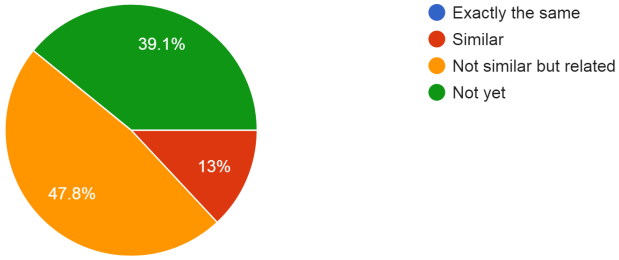
2 responses

Automation currently don't need any ultra sonic sensors.

Probably there'll be budget issue.

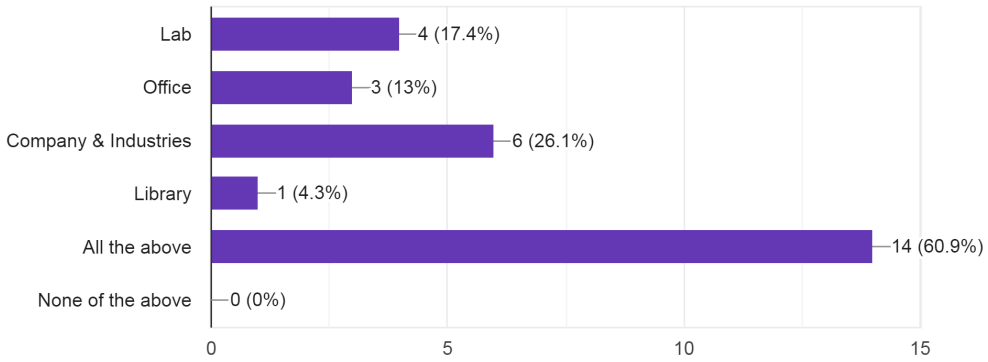
Have you seen any other related projects on the same topic?

23 responses



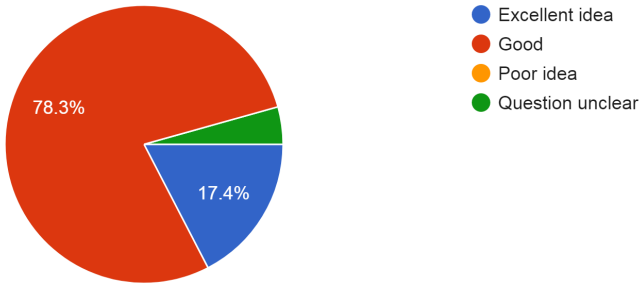
Where can we implement this in your opinion?

23 responses



How can we make the exact appliance work for the person under it? (use of IR sensor)

23 responses

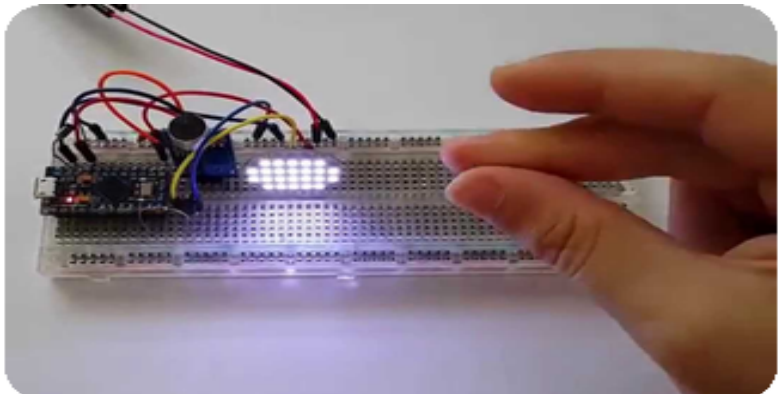


EXISTING MARKET PRODUCTS

Product Name: **Arduino with google assistant**

Almost there is manual switching all over the world,only in some of the places there is automatic switching.So make it wider throughout the world ,automation places the main role.The major feature by Google is Google assistant that is wider reached over the globe.If we connect Google assistant with the Arduino,there is direct communication between the user and the Google assistant,So there is possibility of conserving energy and reduction of power consumption.

Product Name: **Arduino with sound sensor**



Here the major source used is sound sensor,by the recognition of sounds,it is automatically connected to arduino and senses the sound and finally energy is conserved.

PROBLEM FORMULATION:

The purpose of this paper is to introduce a problematic phenomenon that can occur when managing multi electrical sources systems by optimization. Design/methodology/approach – The energy management problem is formulated as a linear optimisation problem.

SCOPE

- The purview of the project is not just limited to automation at the workplace level but can be extended to a wide variety of applications:-

log and power automation at centers of public commutation such as airports and railway stations.

- At ecologically sensitive places
- Automation of devices at the institution level such as schools, colleges, libraries, monuments, etc

CONSTRAINTS

- Enactment of automation using log processing involves arduous rewiring of already existing systems and therefore places severe constraints on cost.
- The wires used for automation must be sufficiently insulated so that the constant rise and drop of current do not cause inductive impedance.
- A normalized environment conditions must be maintained by the system as such preferences widely vary according to the needs of the individual.

OBJECTIVES

Based on the problems formulated, the objectives are

- To implement automation to conserve electricity.
- To overcome the issues associated with maintaining logs manually through automation.

- To provide a greater degree of comfort and simplicity in handling electrical appliances at a larger scale.

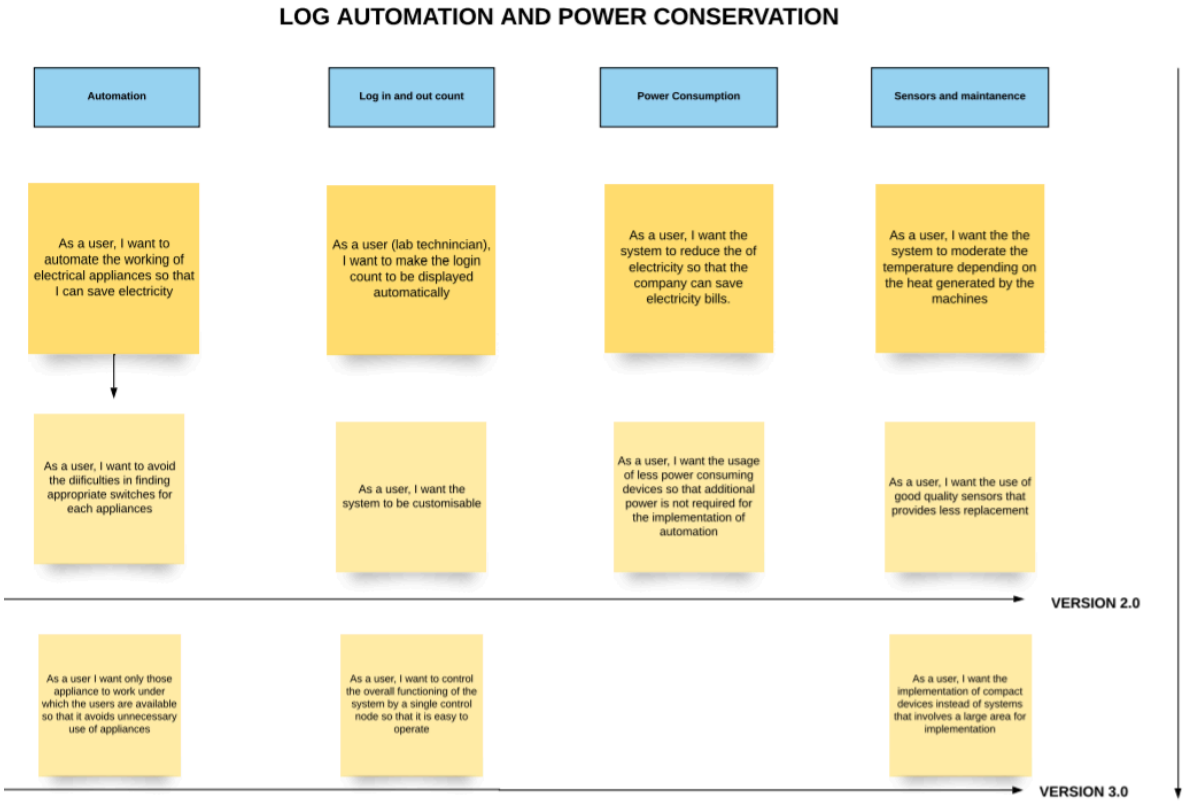
FEATURES OF PRODUCT

- The product typically involves automation of electrical appliances via log processing i.e the number of devices operable is directly proportional to the number of occupants in the service area.
- The product uses ultrasonic and motion sensors to compute the number of occupants in the room.

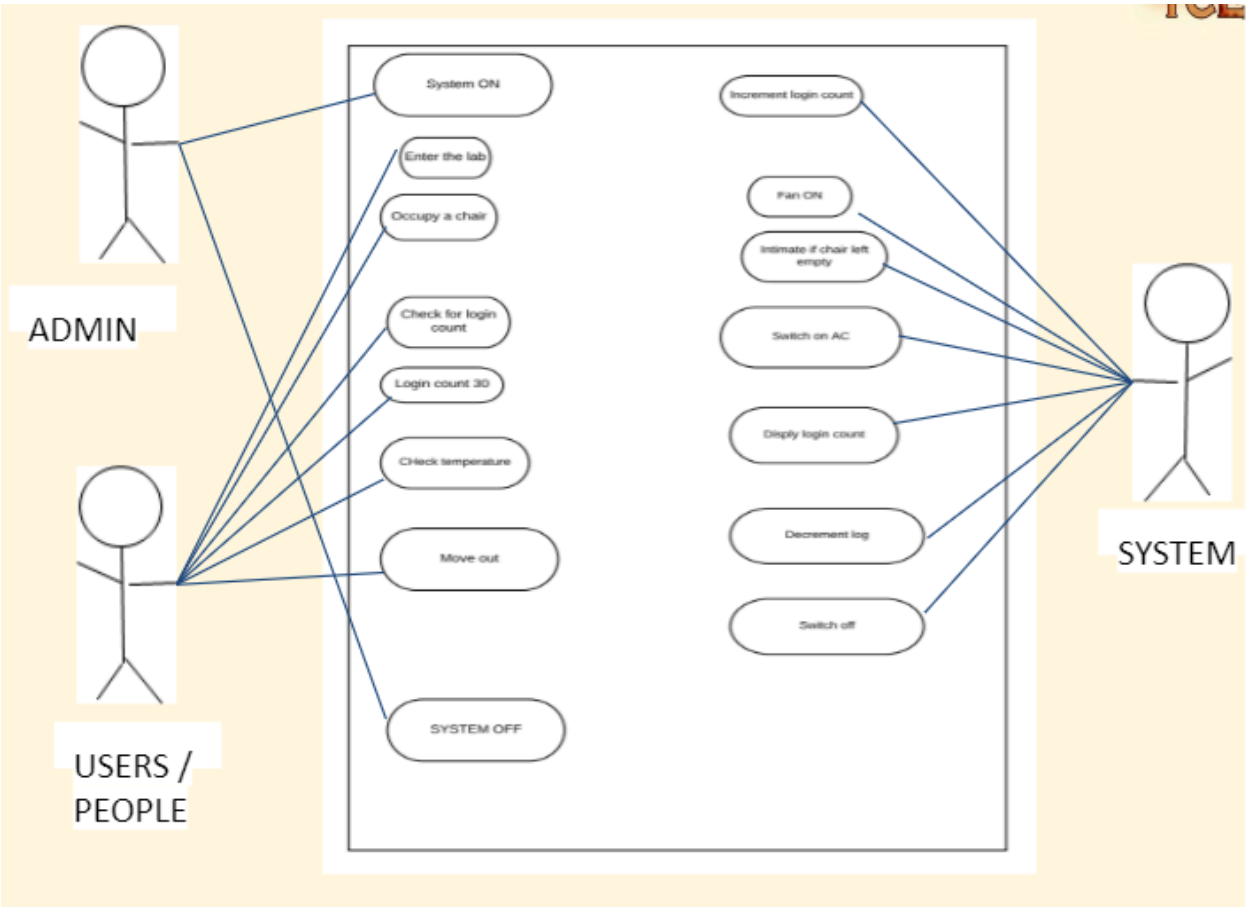
The product also maintains a pleasant atmosphere within the service area, through air conditioning as and when the temperature fluctuates, beyond or below the normal.

- The product also maintains a log of the individuals entering and leaving the service area, for various statistical purposes.

USER STORY MAPPING



USE CASE DIAGRAM



PROJECT TIMELINE

Month	Weeks	Activities	Responsibilities
July	1	Project identification	Discuss the themes
	2	Problem selection	Selecting problem
	3	Meeting-1	Discuss roles and responsibilities
	4	Brainstorming	Identification of 5W and 1H , stakeholders

August	1	Code of cooperation	Deciding the ethics
	2	Stakeholders identification and interview	Perform interview and gather requirements
	3	Voice of customer	Documentation of interview
	4	Review-1	Doing presentation
	5		

REFERENCES

- https://ieeexplore.ieee.org/abstract/document/1300432