GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad
Affiliated

G.H. Patel College of Engineering and Technology

A
Project Report
On

Smart Mirror

Under subject of
DESIGN ENGINEERING – 2B
B. E. II, Semester – VI
(Computer Branch)

Submitted by:

Group:

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Head of the Department

Academic year
(2020-2021)

CERTIFICATE

This is to certify that the case study report entitled "Smart Mirror" submitted by Group ID: 292252 with group members Name Yash Makwana (180110107023), as a part of their Subject Design Engineering – 2B (3160001) at G. H. Patel College of Engineering &Technology (GCET) affiliated to Gujarat Technological University (GTU) is a record of the bonafide work carried out by them under our guidance and supervision. The work submitted, in my opinion, has reached to a level required for being accepted for the examination. The matters embodied in this report, to the best of my knowledge, have been represented by the members of the group with their initial thinking process related to the design engineering concept they have selected.

Prof. Priyang Bhatt   **Prof Krushna Pandit**   **Dr. Maulika Patel**

(Faculty Guide)   (Mentor)   (Prof. & Head of CE Dept.)

Contents

1. Introduction

Team Id : 292252

Team Members: Yash Makwana

Guide : Prof. Priyang Bhatt

Mentor : Prof. Krushna Pandit

1) What is design thinking?

Design thinking is a human centred approach to solve the problems. It uses and organize method of defining the problem through observing and empathizing with the people who are impacted by it, generating multiple solutions and prototyping one of the solutions.

2) Its importance, Socio-economical relevance

It helps organizations learn faster

It reduces the risks associated with the implement of new ideas

It helps to solve problems easily

3) Learning tools and its importance:

Design thinking captures the mindsets and needs of the people for whom you are working for and paints a picture of the opportunities based on the needs of people.

4) Team building and log book exercises and importance:

Different person have different type of thinking, so we get good and important ideas. That helps to know the solutions of problems. Log book helps to recall us the key points and activity we covered during all the time.

5) What is Smart Mirror

Smart mirror is a human centred two-way mirror with an electronic display behind the glass. The display can show the viewer different kinds of information in the form of widgets, such as weather, time, date and news updates.

2. Empathy Mapping

❖ Users :
- Student
- Businessman
- Normal people

❖ Stakeholders :
- Student
- Employees
- Traveller
- Companies

❖ Activities :
- Time
- Weather
- Temperature
- Location

❖ Canvas :

3. Ideation Canvas

❖ People :
- Students
- Businessman
- Normal People

❖ Activities :
- Time
- Weather
- Temperature
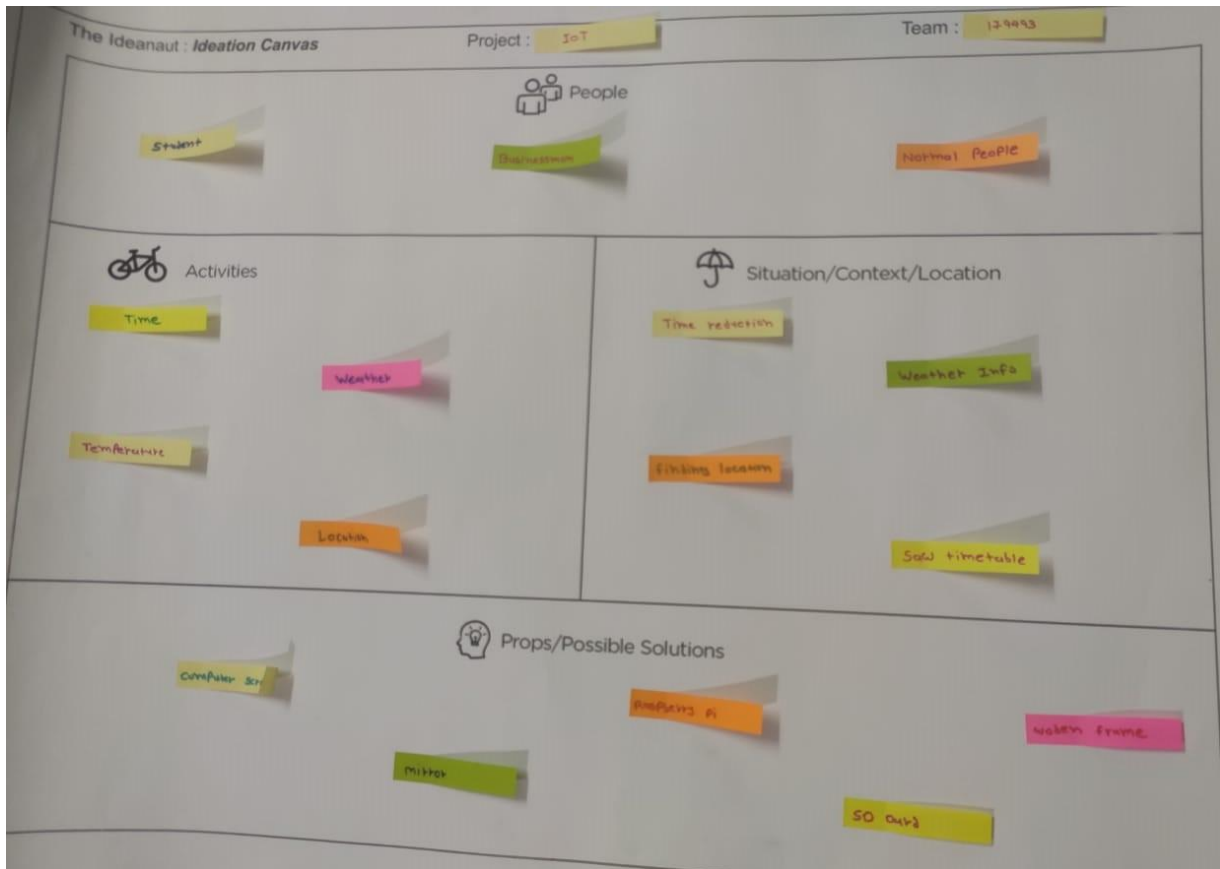- Location

❖ Situation/Context/Location :
- Time saving
- Weather information
- Finding solution
- show timetable

❖ Props/Tools/Objects/Equipment :
- Computer screen
- Mirror
- Wooden frame
- Raspberry Pi
- SD card
- Boards

❖ **Canvas :**

4. **Product Development Canvas**

❖ **Purpose :**
- Time saving
- Multi tasking

❖ **People :**
- Students
- Businessman
- Normal People

❖ **Product Experience :**

- Time Saving
- User friendly
- Cost Effective

❖ **Product Functions :**

- Display Data

❖ **Product Features :**

- Time saving
- Getting update
- Display date and time

❖ **Components :**

- Mirror/ Display
- Raspberry pi
- IR Sensors
- Camera
- IR sensors
- Microphone
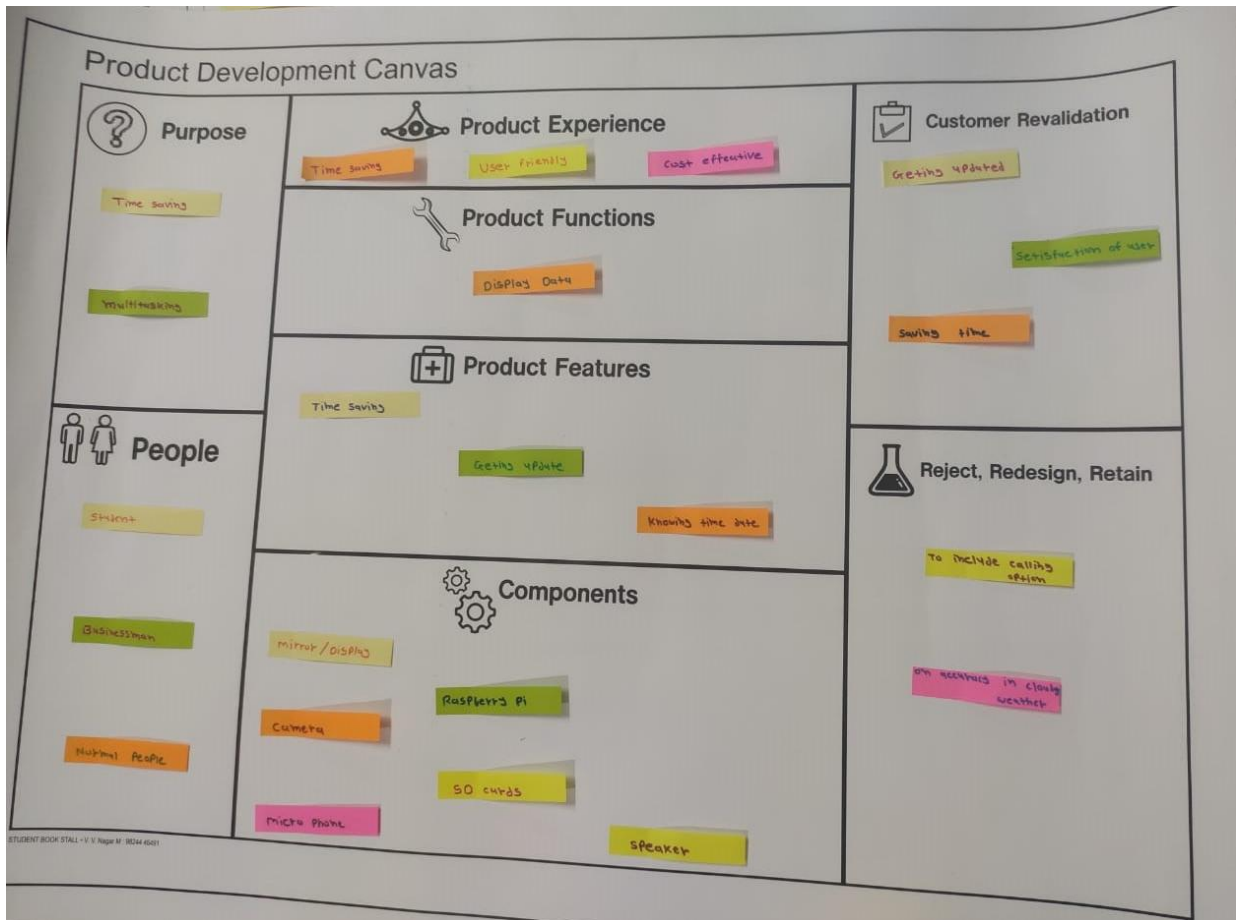- Speaker

❖ **Customer Revalidation :**

- Getting updated
- Satisfaction of user
- Saving time

❖ **Reject, Redesign, Retain :**
- To include calling option
- Not accurate in cloudy weather

❖ **Canvas :**

5. Mind Mapping Canvas

❖ Canvas :
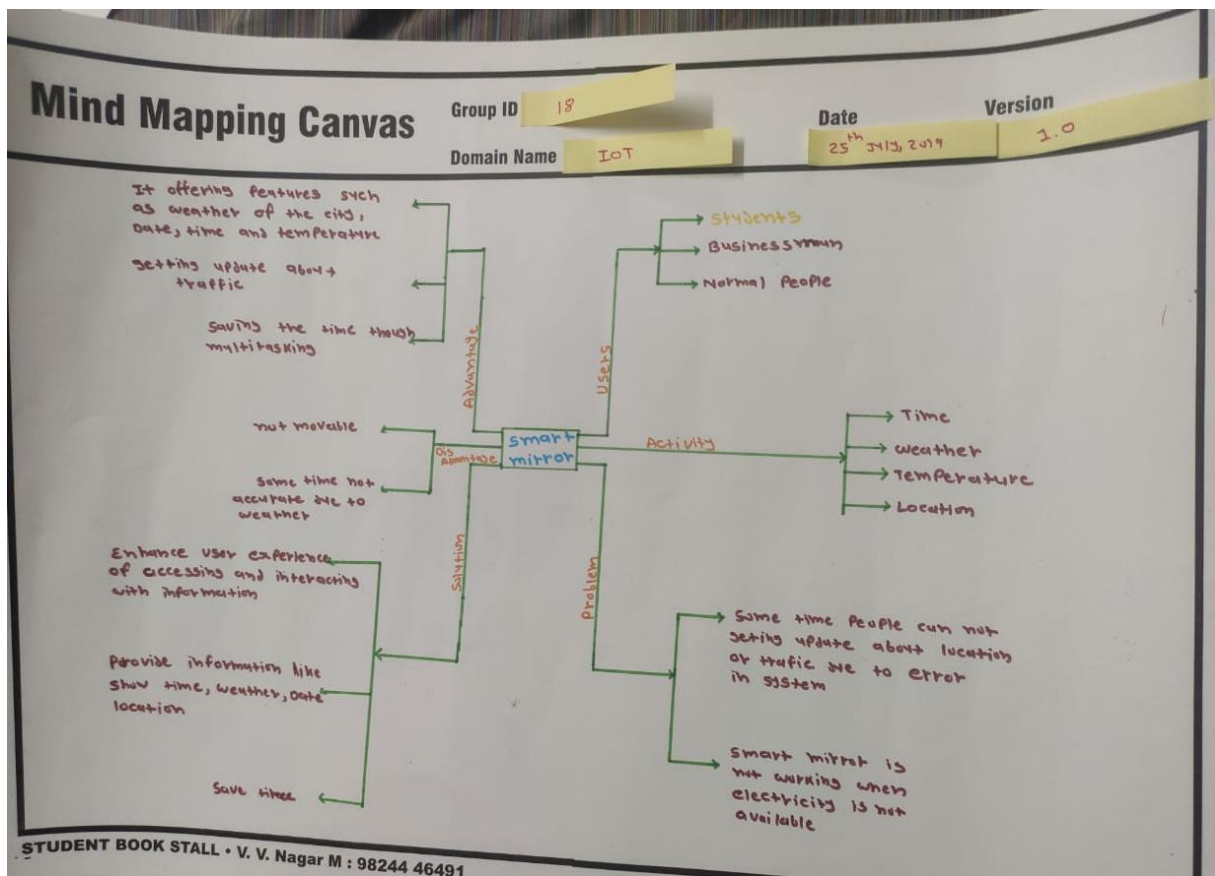
6. AEIOU Canvas

❖ Environment :
- Home automation
- Industry
- Hospitals
- Crowdies

❖ Interactions :
- Voice command
- Smartphone
- Hand gestures

❖ Objects :
- Raspberry pi
- Camera
- Display
- Microphone
- Speaker
- Sensor

❖ Users :
- Student
- Businessman
- Normal People

❖ Activities :
- Time
- Weather
- Temperature
- Location

❖ Canvas :

7. Prototype

Prototype

CAMRA
DHT22 SENSOR
ONE WAY MIRROR
RASPBERRY PI
MONITOR
DROP BOX
5V POWER SUPPLY
230V POWER SUPPLY

8. Learning Need Matrix

Learning Need Matrix   Group ID:292252   Date:
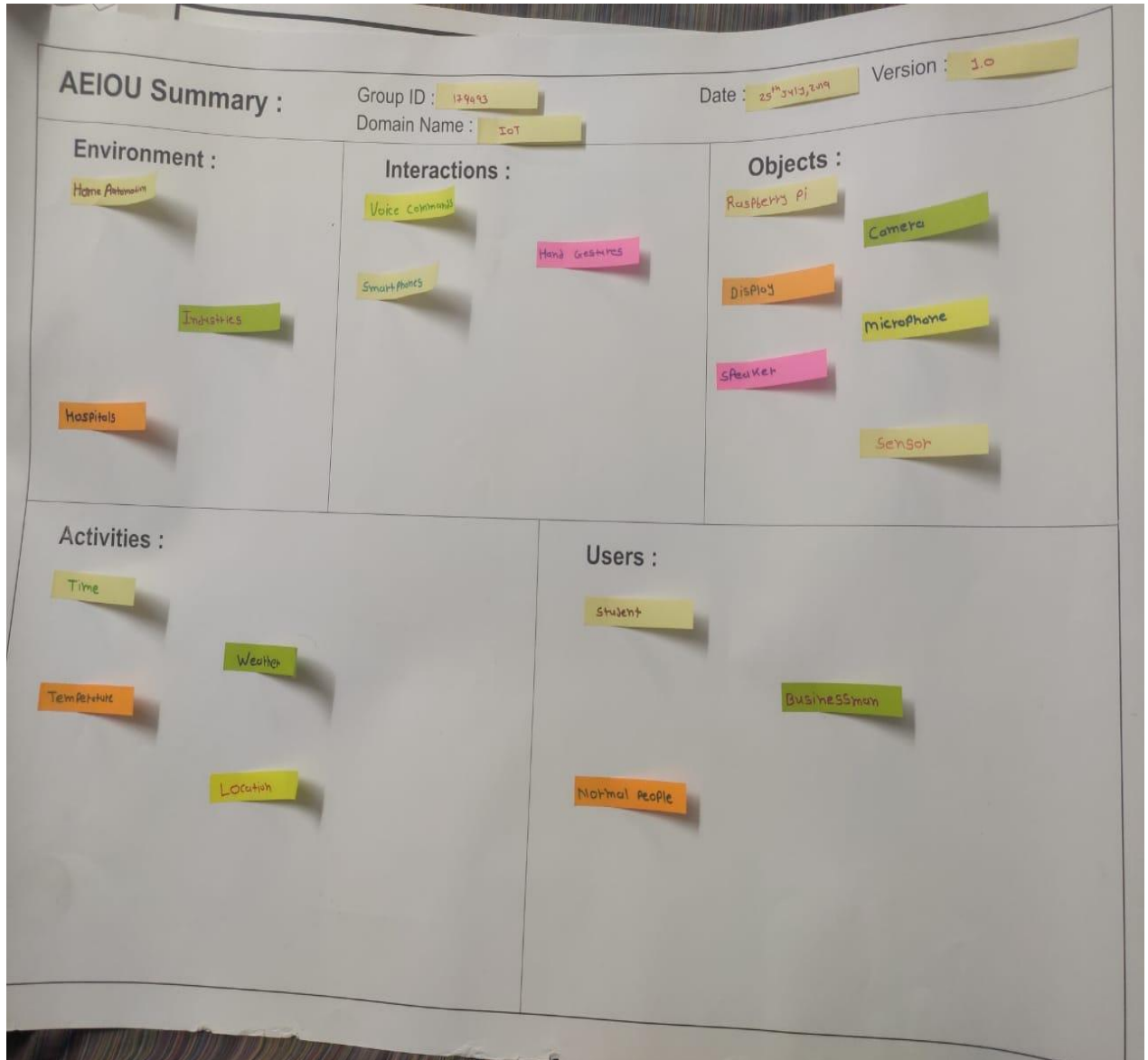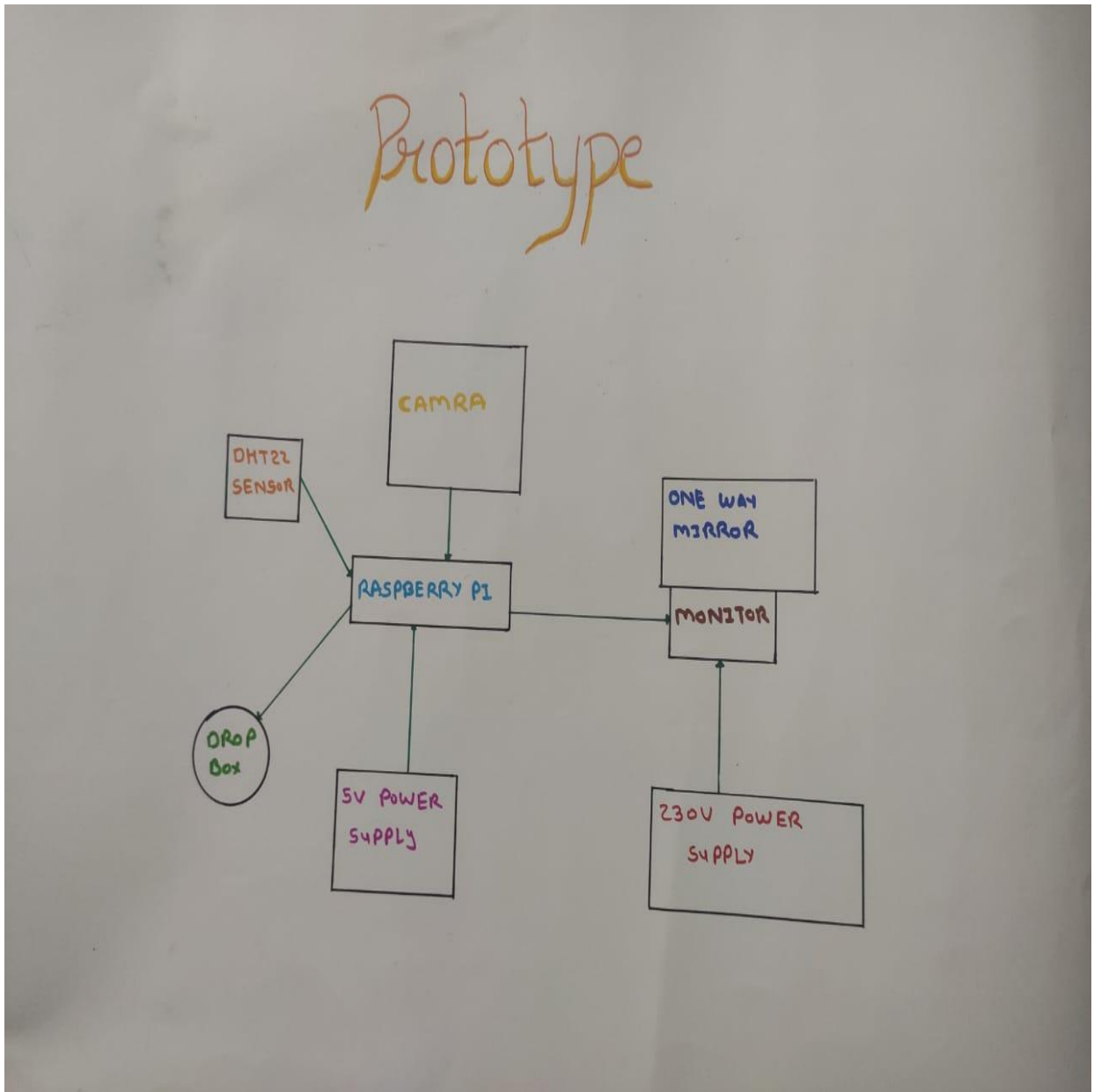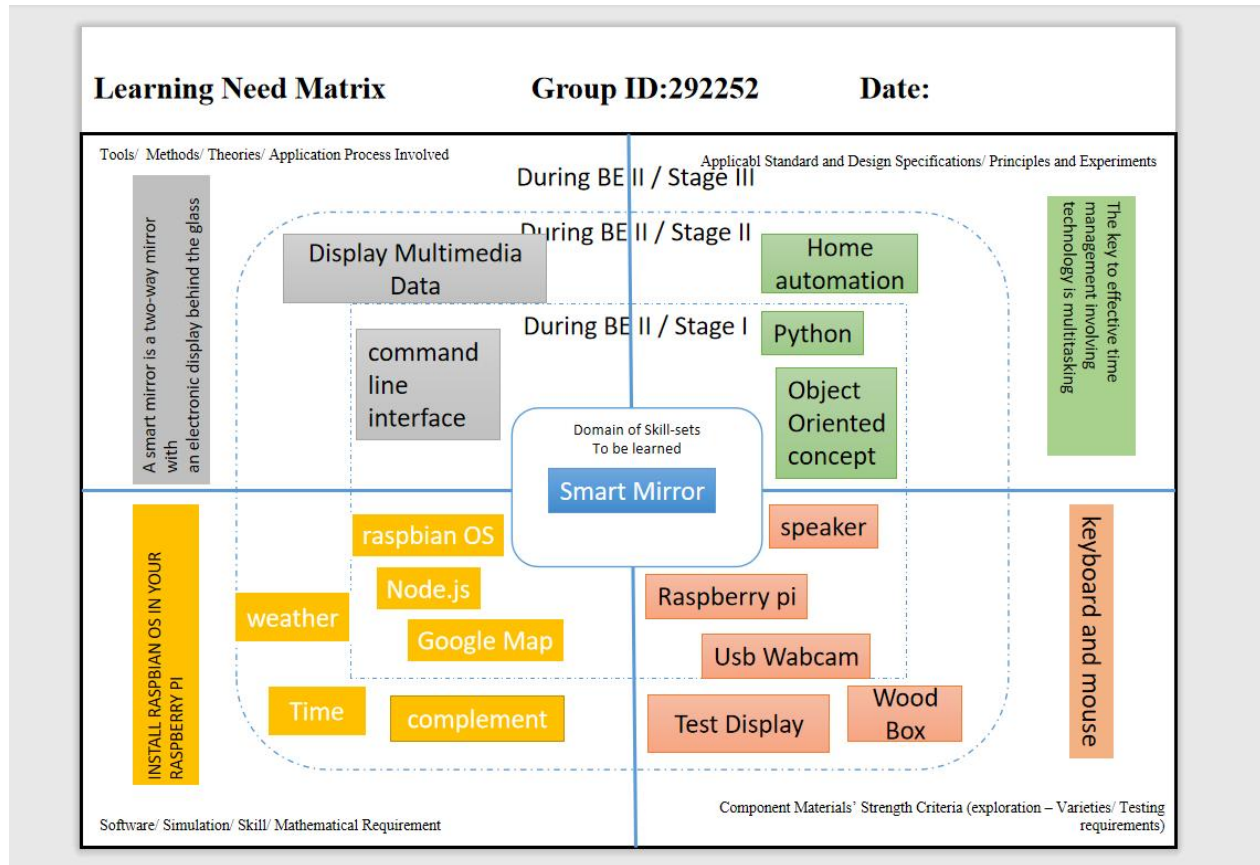
Tools/ Methods/ Theories/ Application Process Involved

Applicabl Standard and Design Specifications/ Principles and Experiments

During BE II / Stage III

During BE II / Stage II

During BE II / Stage I

A smart mirror is a two-way mirror with an electronic display behind the glass

Display Multimedia Data

command line interface

Home automation

Python

Object Oriented concept

The key to effective time management involving technology is multitasking

Domain of Skill-sets To be learned

Smart Mirror

raspbian OS

Node.js

Google Map

weather

Time

complement

speaker

Raspberry pi

Usb Wabcam

Test Display

Wood Box

INSTALL RASPBIAN OS IN YOUR RASPBERRY PI

keyboard and mouse

Software/ Simulation/ Skill/ Mathematical Requirement

Component Materials' Strength Criteria (exploration – Varieties/ Testing requirements)

9.   Conclusions

Smart mirror have great potential to enhance user experience of accessing and interacting with information. Smart mirror will be useful at the home, business and hospitals. This Mirror provides information like show time, weather, date, location etc. Smart mirror help to save the time. It change simple mirror into smart mirror which can show the importing things on it. Person will do multitask at same time by using smart mirror.

10.   References

www.google.com
www.de.gtu.ac.in
www.researchgate.net