PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF-RELIANT

PROJECT REPORT

INTRODUCTION

1. INTRODUCTION

1.1 PROJECT OVERVIEW

- ✔ Most of the time due to number of work for the people as well as regarding age and some disease which leads to forget the basic things among daily routine.
- ✔ In this paper we have review the technology of home health care system among them a medicine reminder system and some improvement regarding authentication have well focused.

1.2 PURPOSE

- ✔ Sometimes elderly people forget to take their medicine at the correct time.
- ✔ They also forget which medicine He / She should take at that particular time.
- ✔ And it is difficult for doctors/caretakers to monitor the patients around the clock.
- ✔ To avoid this problem, this medicine reminder system is developed.

LITERATURE SURVEY

2. LITERATURE SURVEY

2.1. Existing problem

- ✔ Elderly people let slip the medications at the correct time and the existing solutions for this problem is setting reminders or using pill boxes, calendars, Personal Assistance.
- ✔ Though the solutions give reminders, the voice commands or assistance given by this system is more efficient.

2.2. References

1) Visual Health Reminder: A Reminder for Medication Intake and Measuring Blood Pressure to Support Elderly People ; Rene Baranyi; Sascha Rainer; Stefan Schlossarek; Nadja Lederer; Thomas Grechenig.

2) Cloud Computing based Medical Assistance & Pill Reminder ; A. Chinnasamy; Ram Prasad J; Syed Rafeeq Ahmed; Akash S.

2.3. Problem statement definition

- ✔ Skipping medicines can be serious for some medical health conditions.
- ✔ Sometimes elderly people forget to take their medicine at the correct time.
- ✔ They also forget which medicine one should take at that particular time.
- ✔ And it is difficult for doctors/caretakers to monitor the patients around the clock.

IDEATION & PROPOSED SOLUTION

3. IDEATION & PROPOSED SOLUTION

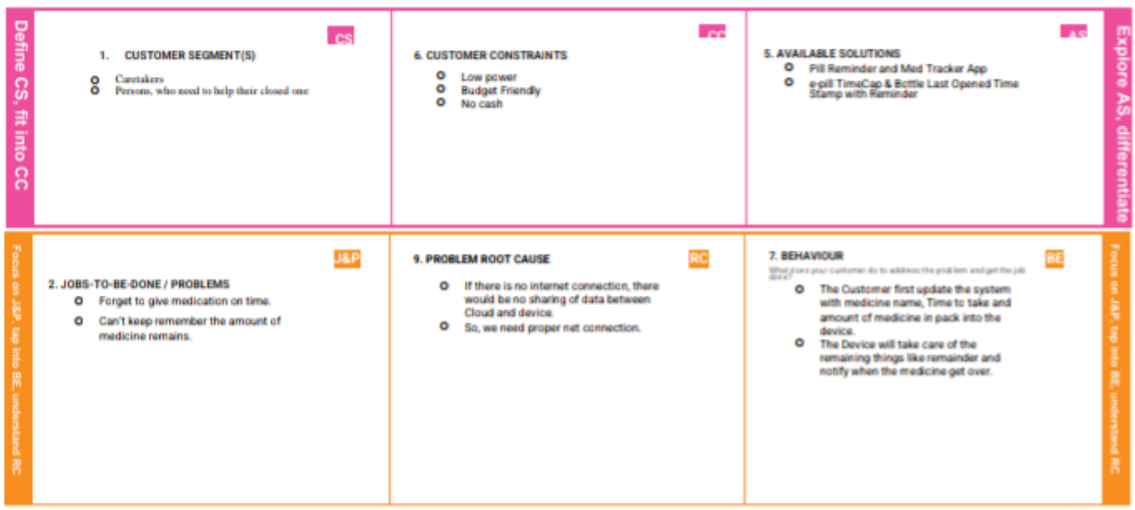
3.1 Empathy Map Canvas

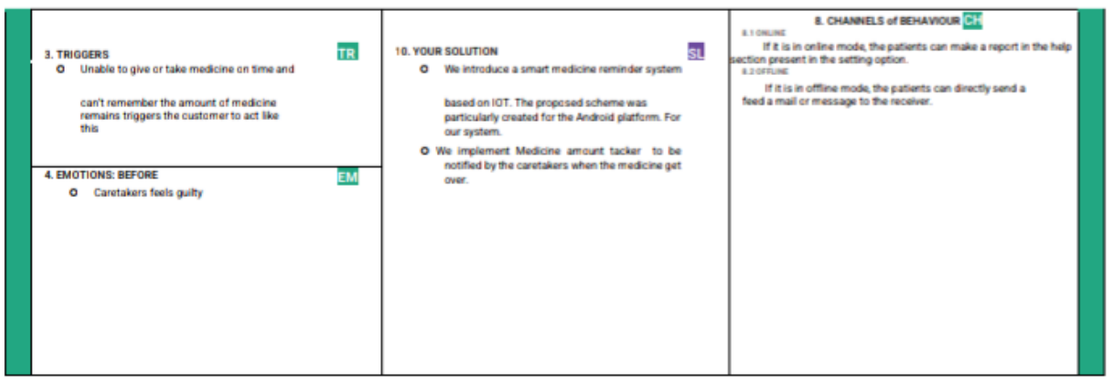
3.2 Ideation & Brainstorming

3.3 Proposed Solution

S.No	Parameter	Description
1	Problem Statement (Problem to be solved)	Old people who are need pill remainder and self-assistance because they don't want to skip their medicines
2	Idea / Solution description	Create a web application which remind the tablets name and time & Create a smart watch which can be able to ring an alarm and vibrate on time
3	Novelty / Uniqueness	Deaf people can easily remind the tablet time with the vibration in the smart watch
4	Social Impact / Customer Satisfaction	Customers are satisfied y when they intake their medications on time and they feel healthy
5	Business Model (Revenue Model)	Through our web application the revenue can be made in the form of pop-up advertisements, overlay ads from third party services.
6	Scalability of the Solution	Large number of people can be supplied with the wearable devices to ensure their safety and they can easily set their medication time in the web application

3.4 Problem Solution Fit





REQUIREMENT ANALYSIS

4. Requirement Analysis

4.1 Functional Requirement

FR No.	Functional Requirement(Epic)	Sub Requirement(Story/Sub-task)
FR 1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR 2	User Confirmation	Confirmation via Email Confirmation via OTP
FR 3	User Login	login through User Id and Password
FR 4	Network Connectivity	Via Wi-Fi /mobile data.
FR 5	IBM IoT Platform	Access cloud storage via internet and it gives medication information.
FR 6	Node-RED	Uses to transfer the data from IOT platform to UI platform and helps in storing the data.

4.2 Non-Functional Requirements

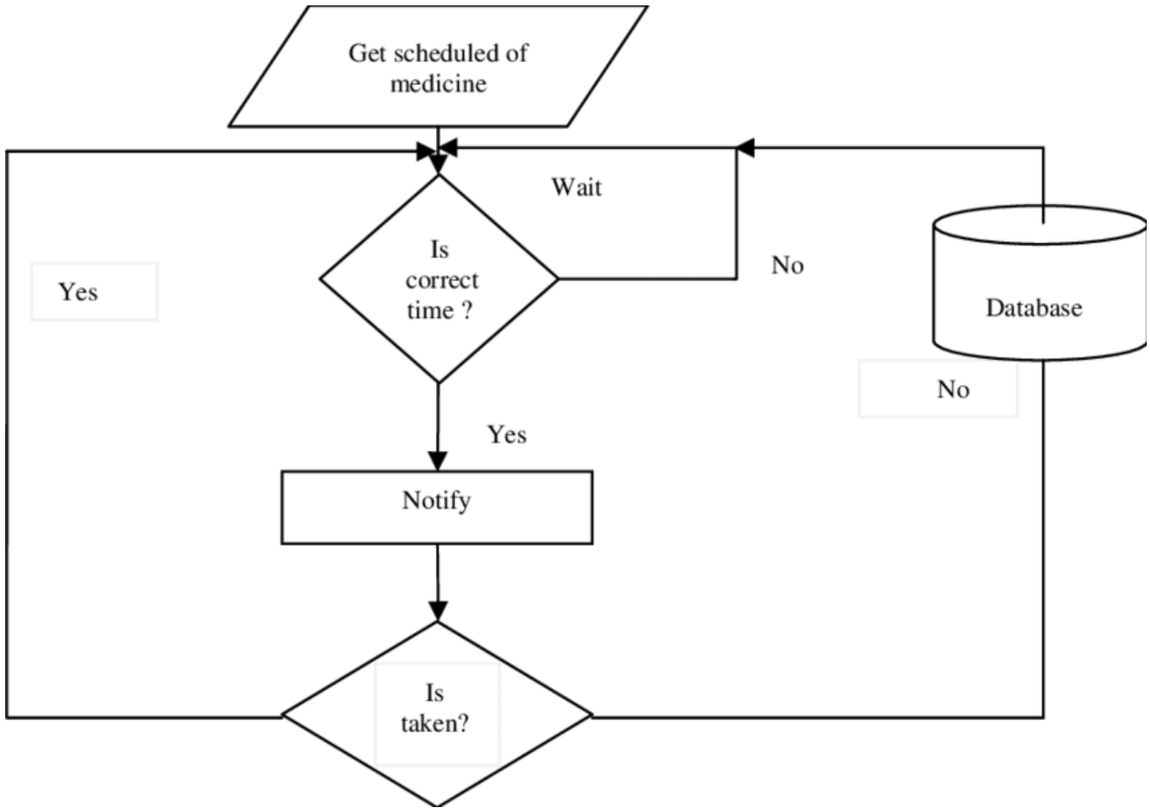
NFR No.	Non-Functional Requirement	Description
NFR -1	**Usability**	It can easily track and monitor the medication time of users and share the information to the caregivers.
NFR -2	**Security**	The cloudant database is highly secured and it prevents data from hacking.
NFR -3	**Reliability**	The prescription of medication for users is assured all the time.

NFR -4	**Performance**	It reminds users to take their medications and get them refilled, warns about drug interactions, and assists caregivers in managing prescriptions.
NFR -5	**Availability**	To keep track the medication of users.
NFR -6	**Scalability**	The users can set the time for their medication and also can adjust how much medication to take within the application.

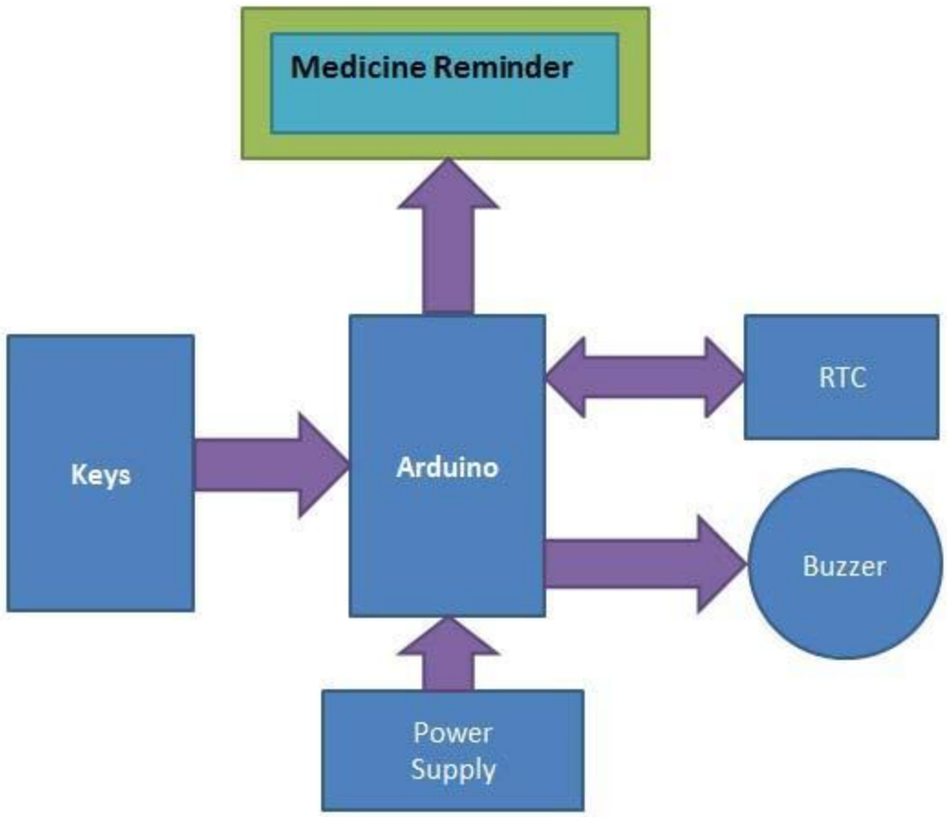
PROJECT DESIGN

5. PROJECT DESIGN

5.1 Data Flow Diagram



5.2 Technical Architecture



5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (citizen)	Registration	USN-1	As a user, I can register for the application by confirming OTP and access manually	I can access my account	High	Sprint-1
Customer (Doctor)	User Requirements	USN-2	As a user, I want to monitor patients heartbeat 24/7.	I can receive confirmation email & click confirm	High	Sprint-1
Customer (Care takers)	Confirmations	USN-3	As a user, I can register and confirm through e-mail OTP.	I can register & access the dashboard with Facebook Login.	Low	Sprint-2

Customer (Elderly People)	Payment options	USN-4	As a user, I can pay through Cash on Delivery or else with Credit/Debit card.	I can register or pay through login Dashboard.	Medium	Sprint-1
Administrator	Dashboard	USN-5	As a user, I can log into the application by entering mail and password	I want to access customer Health and save the Data 24/7.	High	Sprint-1

PROJECT PLANNING & SCHEDULING

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	IBM Watson IOT platform	USN-1	Creating devices and board and generating data	1	Medium	Bebisha Therese.G Fathima Rehana.M Kanchana.B.J Abitha.K
Sprint-2	Storing Data using node-red	USN-2	Storing the data in IBM Cloudant DB through node-red functions	2	High	Bebisha Therese.G Fathima Rehana.M Kanchana.B.J Abitha.K
Sprint-3	IoT device/ Microcontroller Board	USN-4	The board connect with the cloud and retrieve the information and remain the peoples	2	Low	Bebisha Therese.G Fathima Rehana.M Kanchana.B.J Abitha.K
Sprint-4	Reminder (TTS)	USN-5	Getting the speech reminder to users to take their tablet	1	High	Bebisha Therese.G Fathima Rehana.M Kanchana.B.J Abitha.K
Sprint-1	IBM Watson IOT platform	USN-1	Creating devices and board and generating data	1	Medium	Bebisha Therese.G Fathima Rehana.M Kanchana.B.J Abitha.K
Sprint-4	Reminder (TTS)	USN-5	Getting the speech reminder to users to take their tablet	1	High	Bebisha Therese.G Fathima Rehana.M Kanchana.B.J Abitha.K

6.2 Print Delivery Schedule

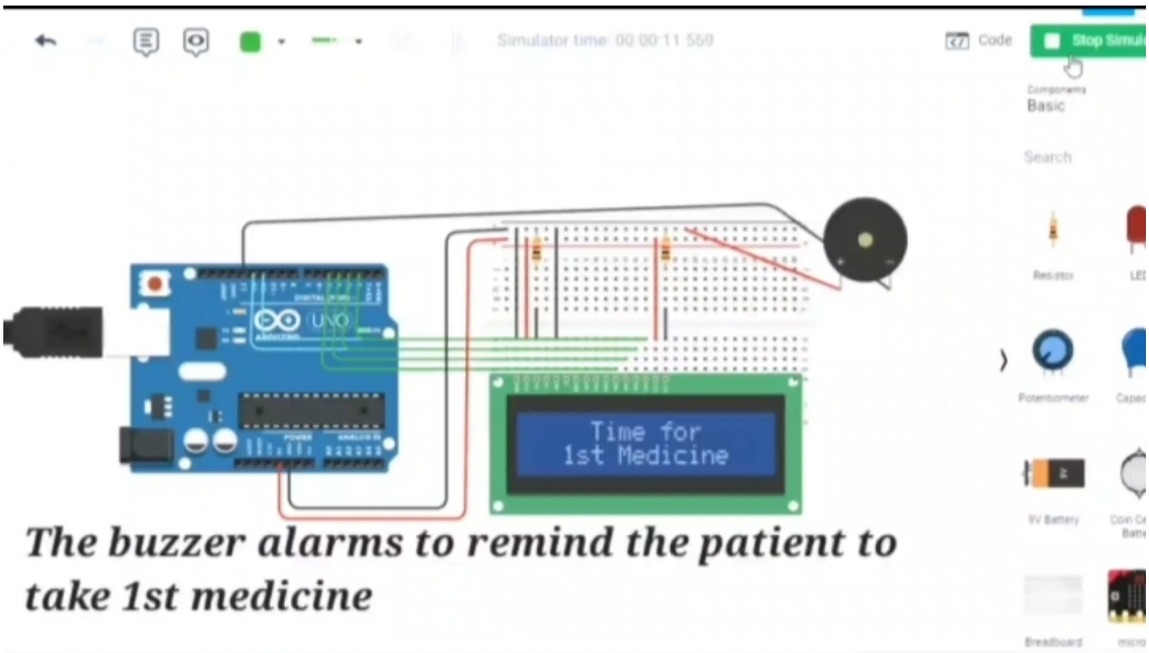
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned))	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	19 Oct 2022	25 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	30 Oct 2022	04 Nov 2022	20	31 Oct 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	07 Nov 2022
Sprint-4	20	6 Days	13 Nov 2022	18 Nov 2022	20	18 Nov 2022

CODING & SOLUTIONING

7. CODING AND SOLUTIONING

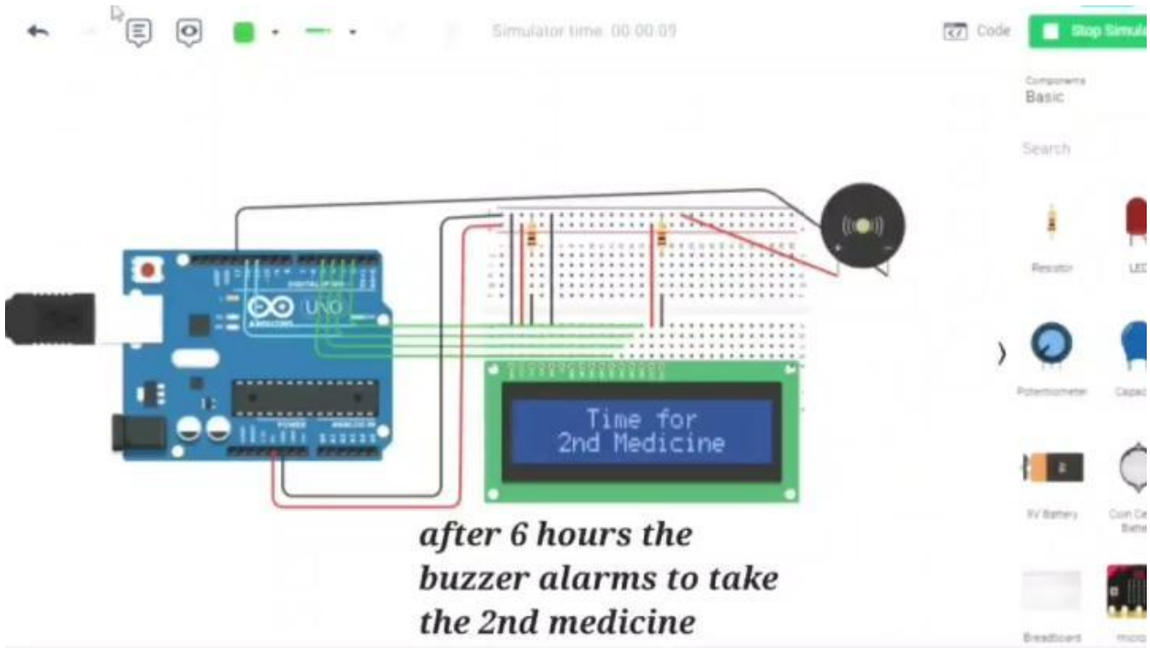
7.1 Feature 1

The system has developed a feature of reminding the user to take their first medicine.



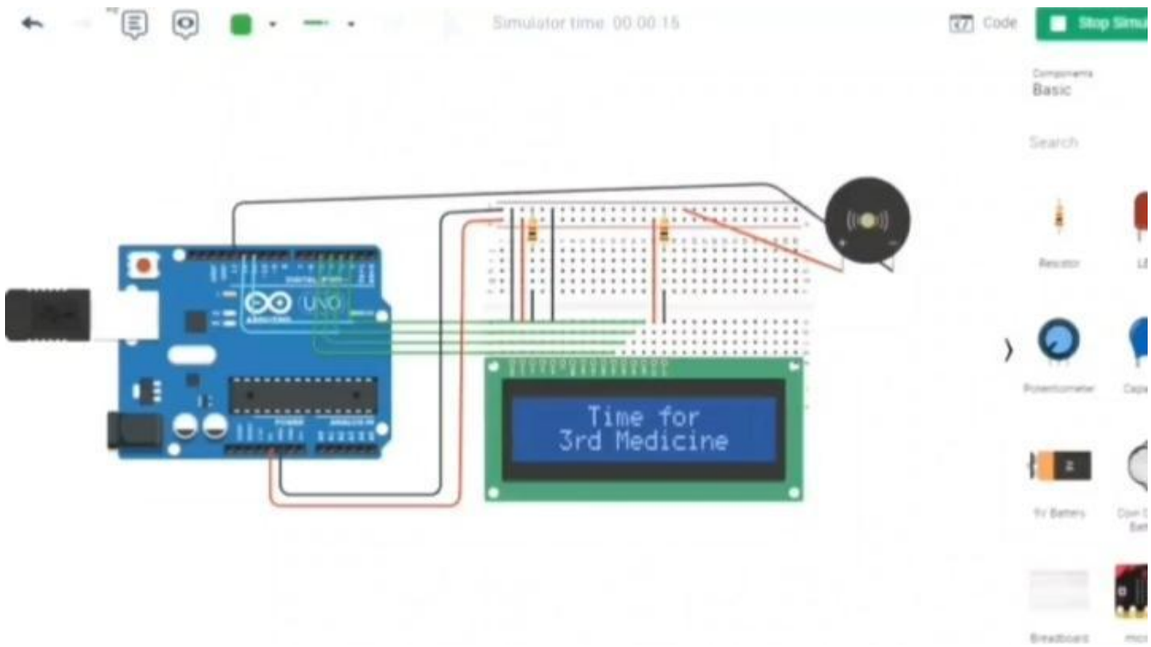
7.2 Feature 2

The system has developed a feature of reminding the user to take their second medicine.



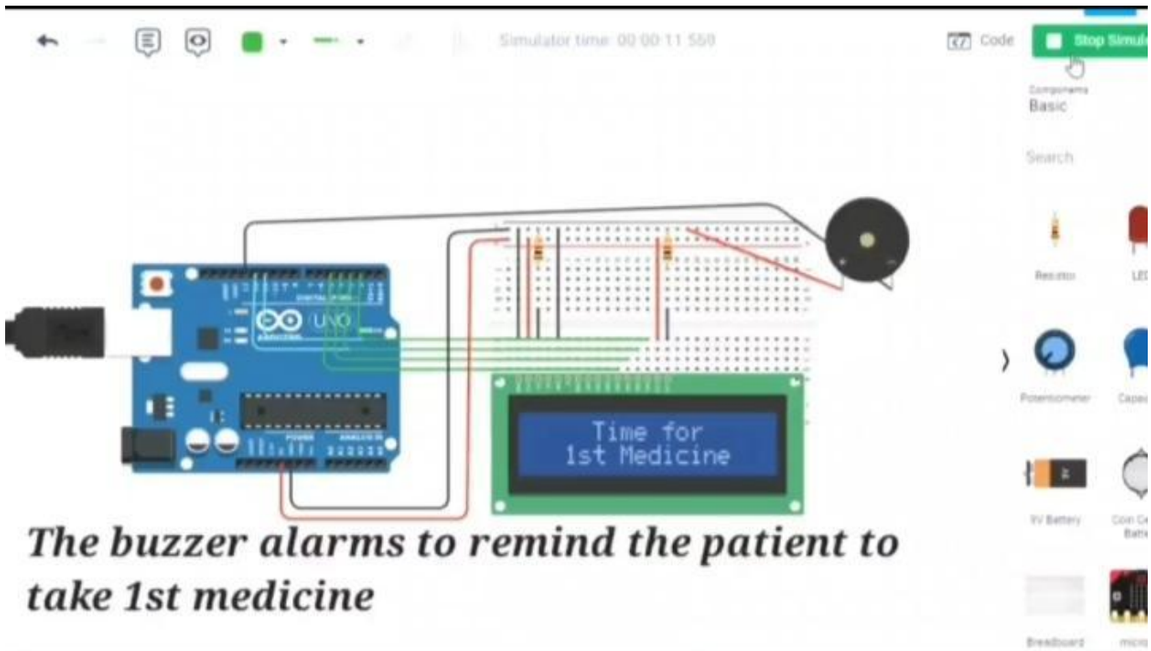
7.3 Feature 3

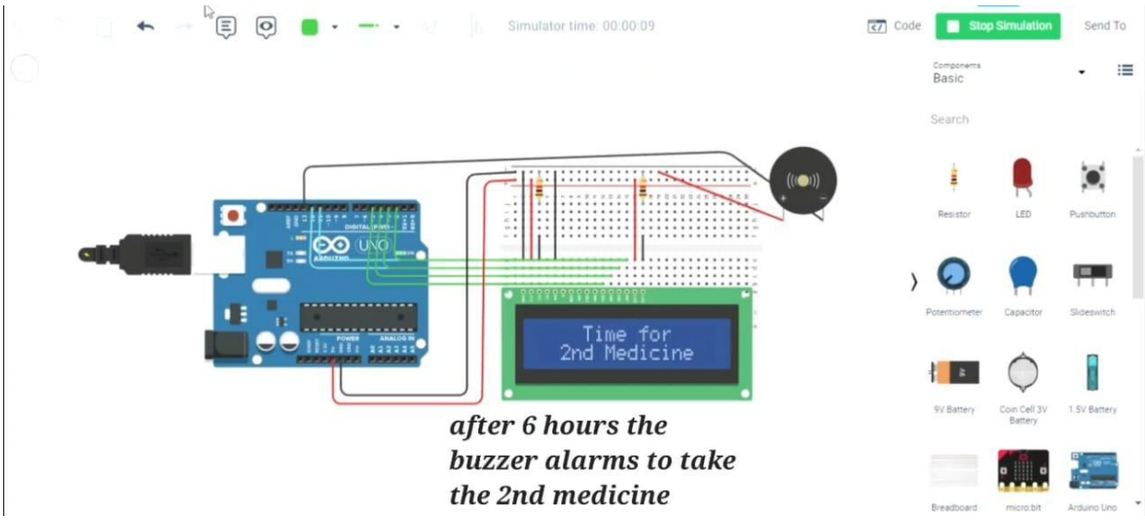
The system has developed a feature of reminding the user to take their third medicine.



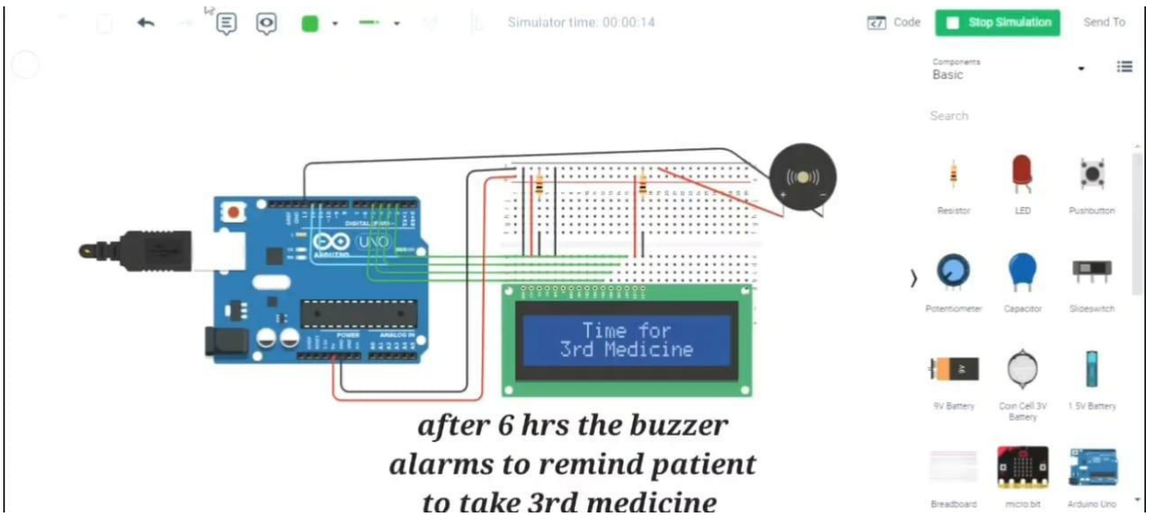
RESULT

8. RESULT


Time for
1st Medicine
The buzzer alarms to remind the patient to take 1st medicine



after 6 hours the buzzer alarms to take the 2nd medicine



after 6 hrs the buzzer alarms to remind patient to take 3rd medicine

ADVANTAGES & DISADVANTAGES

9. ADVANTAGES & DISADVANTAGES

9.1 Advantages

Helps the elderly people to take their medicine at the correct time.
Avoid personal assistants or caretakers needed for medically sick people.
Effortless Functions.
Backup supply.

9.2 Disadvantages

Makes people lethargic and makes them dependent always on others.
Arduino is costly.

CONCLUSION

10. CONCLUSION

- ✔ The project offers the elderly or medically sick people a personal assistant which reminds them of the medicines to be consumed at the particular time.
- ✔ Skipping tablets may lead to serious problems if the person has a severe illness and this can be avoided.
- ✔ The cost production is low as compared to other problem solutions.
- ✔ The medicine reminder will be very helpful to many patients.

FUTURE SCOPE

11. FUTURE SCOPE

The project can be further developed by bringing into the feature of informing the medicine name during the notification.
In Future, it can be done with the help of Artificial Intelligence.
This system implementation will also give the reminder about doctor's next appointment.
In future, the system can be improvised.

APPENDIX

12. APPENDIX

12.1 Source Code

```
#include <LiquidCrystal.h>

#define D4 5
#define D5 4
#define D6 3
#define D7 2
#define E 11
#define RS 12

int buzz= 13;

LiquidCrystal LCD(12, 11, 5, 4, 3, 2);

void setup()
{
 pinMode(buzz, OUTPUT);
 // set up the LCD's number of columns and rows:
 LCD.begin(16, 2);
}

void loop()
{
 LCD.setCursor(4, 0);
 LCD.print("STAY HEALTHY");
 LCD.setCursor(2, 1);
 LCD.print("GET WELL SOON");
 delay(10000);
 LCD.clear();
 LCD.setCursor(4, 0);
```

```
  LCD.print("Time for");
  LCD.setCursor(2, 1);
  LCD.print("1st Medicine");
  digitalWrite(buzz, HIGH);
  delay(200000);
  digitalWrite(buzz, LOW);
  LCD.clear();
  delay(36000000);
  LCD.setCursor(4, 0);
  LCD.print("STAY HEALTHY");
  LCD.setCursor(2, 1);
  LCD.print("GET WELL SOON");
  delay(10000);
  LCD.clear();
  LCD.setCursor(4, 0);
  LCD.print("Time for");
  LCD.setCursor(2, 1);
  LCD.print("2nd Medicine");
  digitalWrite(buzz, HIGH);
  delay(200000);
  digitalWrite(buzz, LOW);
  LCD.clear();
  delay(36000000);
  LCD.setCursor(4, 0);
  LCD.print("STAY HEALTHY");
  LCD.setCursor(2, 1);
  LCD.print("GET WELL SOON");
  delay(10000);
  LCD.clear();
  LCD.setCursor(4, 0);
  LCD.print("Time for");
  LCD.setCursor(2, 1);
  LCD.print("3rd Medicine");
  digitalWrite(buzz, HIGH);
  delay(200000);
  digitalWrite(buzz, LOW);
  LCD.clear();
  delay(36000000);
}
```

13. **GITHUB LINK** : https://github.com/IBM-EPBL/IBM-Project-48093-1660804410

PROJECT DEMO LINK: https://youtu.be/mIIIMZeMF_U