SPRINT- 1

Date	29 OCT 2022
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Project Name	Personal Assistance for Seniors Who Are Self-Reliant

SPRINT :1

The aim of sprint 1 is SIMULATION CREATION

USN-1

As a user, I can register for the application by entering my email, password, and confirming my password.

USN-2

As a user, I will receive confirmation email once I have registered for the application

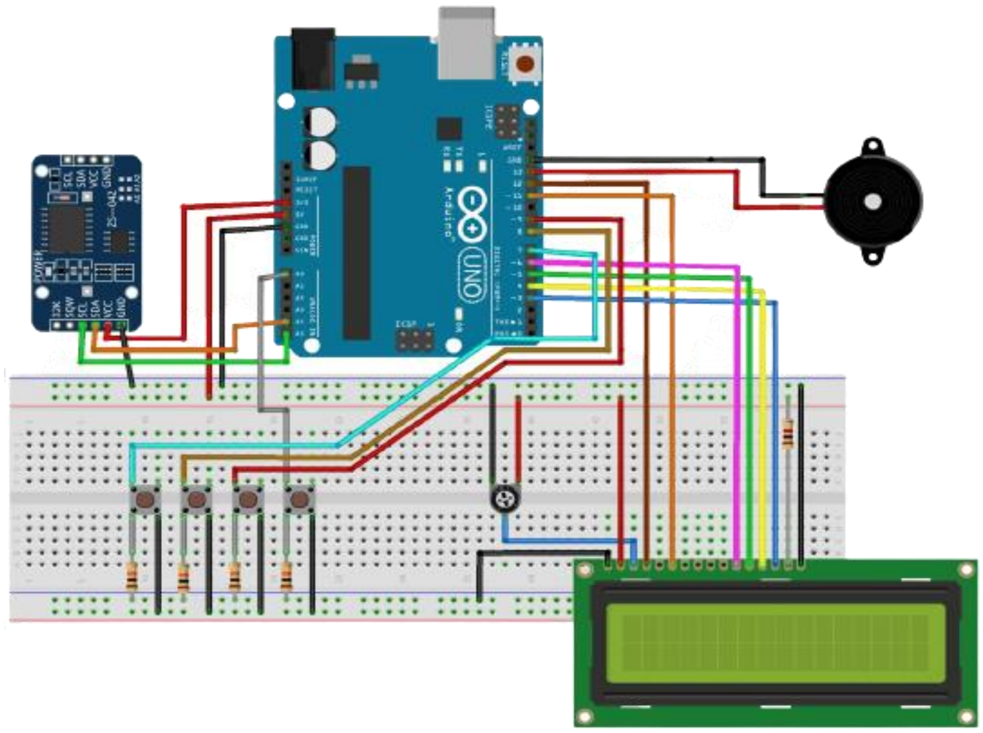
USN-3

As a user, I can register for the application through Gmail

REQUIRED MATERIALS :

1. Arduino Uno (We can use other Arduino boards also, like Pro mini, Nano)
2. RTC DS3231 module
3. 16x2 LCD Display
4. Buzzer
5. Led(any color)
6. Breadboard
7. Push Buttons
8. 10K Potentiometer
9. 10K,1K Resistors
10. Jumper Wires

SIMULATION :



CODE :

```
//Medicine Reminder using Arduino Uno

// Reminds to take medicine at 8am, 2pm, 8pm

/*  The circuit:

   LCD RS pin to digital pin 12

   LCD Enable pin to digital pin 11

   LCD D4 pin to digital pin 5

   LCD D5 pin to digital pin 4

   LCD D6 pin to digital pin 3
   LCD D7 pin to digital pin 2

   LCD R/W pin to ground

   LCD VSS pin to ground

   LCD VCC pin to 5V

   10K resistor:

   ends to +5V and ground

   wiper to LCD VO pin (pin 3)*/

#include <LiquidCrystal.h>

#include <Wire.h>

#include <RTClib.h>

#include <EEPROM.h>

int pushVal = 0;

int val;

int val2;

int addr = 0;

RTC_DS3231 rtc;
```

```
const int rs = 12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 =
2;                 // lcd pins


LiquidCrystal lcd(rs, en, d4, d5, d6, d7);



#define getWellsoon
0


#define HELP_SCREEN 1


#define TIME_SCREEN 2



//bool pushPressed;                               //flag
to keep track of push button state


int pushpressed = 0;


const int ledPin
=  LED_BUILTIN;                         // buzzer and led
pin


int ledState = LOW;


int Signal = 0;





int buzz = 13;


int push1state, push2state, push3state, stopinState =
0;     //


int push1Flag, push2Flag, Push3Flag =
false;              // push button flags


int push1pin = 9;
int push2pin = 8;

int push3pin = 7;

int stopPin = A0;

int screens = 0;              // screen to show

int maxScreen = 2;            // screen count

bool isScreenChanged = true;


long previousMillis = 0;

long interval = 500;                   // buzzing
interval

unsigned long currentMillis;


long previousMillisLCD = 0;    // for LCD screen update

long intervalLCD = 2000;          // Screen cycling
interval

unsigned long currentMillisLCD;


//   Set Reminder Change Time

int buzz8amHH = 8;          //    HH -
hours         ##Set these for reminder time in 24hr
Format

int buzz8amMM = 00;          //    MM - Minute

int buzz8amSS = 00;          //    SS - Seconds
int buzz2pmHH = 14;          //    HH - hours

int buzz2pmMM = 00;          //    MM - Minute

int buzz2pmSS = 00;          //    SS - Seconds


int buzz8pmHH = 20;          //    HH - hours

int buzz8pmMM = 00;          //    MM - Minute

int buzz8pmSS = 00;          //    SS - Seconds




int nowHr, nowMin, nowSec;                     // to
show current mm,hh,ss


// All messeges

void gwsMessege(){               // print get well soon
messege

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Stay Healthy :)");     // Give some
cheers

    lcd.setCursor(0, 1);
    lcd.print("Get Well Soon :)");    // wish

}

void helpScreen() {              // function to display
1st screen in LCD

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Press Buttons");

    lcd.setCursor(0, 1);

    lcd.print("for Reminder...!");



 }


void timeScreen() {              // function to display
Date and time in LCD screen

  DateTime now = rtc.now();             // take rtc time
and print in display

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Time:");

    lcd.setCursor(6, 0);
    lcd.print(nowHr = now.hour(), DEC);

    lcd.print(":");

    lcd.print(nowMin = now.minute(), DEC);

    lcd.print(":");

    lcd.print(nowSec = now.second(), DEC);

    lcd.setCursor(0, 1);

    lcd.print("Date: ");

    lcd.print(now.day(), DEC);

    lcd.print("/");

    lcd.print(now.month(), DEC);

    lcd.print("/");

    lcd.print(now.year(), DEC);

}



void setup() {


  Serial.begin(9600);                      // start
serial debugging


  if (! rtc.begin()) {                      // check if
rtc is connected
```

```
    Serial.println("Couldn't find RTC");

    while (1);

  }

  if (rtc.lostPower()) {

    Serial.println("RTC lost power, lets set the
time!");

  }



//    rtc.adjust(DateTime(F(__DATE__),
F(__TIME__)));            // uncomment this to set the
current time and then comment in next upload when u set
the time

  rtc.adjust(DateTime(2019, 1, 10, 7, 59,
30));                // manual time set



  lcd.begin(16, 2);

  lcd.clear();

  lcd.setCursor(0, 0);

  lcd.print("Welcome
To");                                       // print a
messege at startup

  lcd.setCursor(0, 1);

  lcd.print("Circuit Digest");

  delay(1000);
  pinMode(push1pin,
INPUT);                                    // define
push button pins type


  pinMode(push2pin, INPUT);


  pinMode(push3pin, INPUT);


  pinMode(stopPin, INPUT);


  pinMode(ledPin, OUTPUT);


  delay(200);


  Serial.println(EEPROM.read(addr));


  val2 = EEPROM.read(addr);                         //
read previosuly saved value of push button to start from
where it was left previously


  switch (val2) {


    case 1:


      Serial.println("Set for 1/day");


      push1state = 1;


      push2state = 0;


      push3state = 0;


      pushVal = 1;


      break;
    case 2:

      Serial.println("Set for 2/day");

      push1state = 0;

      push2state = 1;

      push3state = 0;

      pushVal = 2;


      break;

    case 3:

      Serial.println("Set for 3/day");

      push1state = 0;

      push2state = 0;

      push3state = 1;

      pushVal = 3;


      break;

  }



}
```

```
void loop() {

  push1();                                              /
/call to set once/day

  push2();                                              /
/call to set twice/day

  push3();                                              /
/call to set thrice/day

    if (pushVal == 1)
{                                // if push button 1
pressed then remind at 8am

    at8am();                                            /
/function to start uzzing at 8am

  }

  else if (pushVal == 2)
{                             // if push button 2
pressed then remind at 8am and 8pm

    at8am();

    at8pm();                                            /
/function to start uzzing at 8mm

  }

  else if (pushVal == 3)
{                             // if push button 3
pressed then remind at 8am and 8pm

    at8am();
    at2pm();
//function to start uzzing at 8mm


    at8pm();


  }




  currentMillisLCD =
millis();                         // start millis for
LCD screen switching at defined interval of time


  push1state =
digitalRead(push1pin);                  // start reading
all push button pins


  push2state = digitalRead(push2pin);


  push3state = digitalRead(push3pin);


  stopinState = digitalRead(stopPin);




  stopPins();
// call to stop buzzing


  changeScreen();
// screen cycle function




}



// push buttons
```

```
void push1() {                    // function to set
reminder once/day

  if (push1state == 1) {

    push1state = 0;

    push2state = 0;

    push3state = 0;

//    pushPressed = true;

    EEPROM.write(addr, 1);

    Serial.print("Push1 Written : ");
Serial.println(EEPROM.read(addr));  // for debugging

    pushVal =
1;                                             //save
the state of push button-1

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Reminder set ");

    lcd.setCursor(0, 1);

    lcd.print("for Once/day !");

    delay(1200);

    lcd.clear();
  }

}

void push2() {                        //function to set
reminder twice/day

  if (push2state == 1) {

    push2state = 0;

    push1state = 0;

    push3state = 0;

//    pushPressed = true;

    EEPROM.write(addr, 2);

    Serial.print("Push2 Written : ");
Serial.println(EEPROM.read(addr));

    pushVal = 2;

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Reminder set ");

    lcd.setCursor(0, 1);

    lcd.print("for Twice/day !");

    delay(1200);
    lcd.clear();

  }

}

void push3() {                    //function to set
reminder thrice/day

  if (push3state == 1) {

    push3state = 0;

    push1state = 0;

    push2state = 0;

//    pushPressed = true;

    EEPROM.write(addr, 3);

    Serial.print("Push3 Written : ");
Serial.println(EEPROM.read(addr));

    pushVal = 3;

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Reminder set ");

    lcd.setCursor(0, 1);

    lcd.print("for Thrice/day !");
    delay(1200);

    lcd.clear();

  }

}


void stopPins() {                    //function to stop
buzzing when user pushes stop push button

  if (stopinState == 1) {

//    stopinState = 0;

//    pushPressed = true;

    pushpressed = 1;

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Take Medicine  ");

    lcd.setCursor(0, 1);

    lcd.print("with Warm Water");

    delay(1200);

    lcd.clear();

  }
```

```
}




void startBuzz() {                     // function to
start buzzing when time reaches to defined interval



//  if (pushPressed == false) {


 if (pushpressed == 0) {


    Serial.println("pushpressed is false in blink");


    unsigned long currentMillis = millis();


    if (currentMillis - previousMillis >= interval) {


      previousMillis = currentMillis;         // save
the last time you blinked the LED


      Serial.println("Start Buzzing");


      if (ledState == LOW) {                  // if the
LED is off turn it on and vice-versa:


        ledState = HIGH;


      }  else {


        ledState = LOW;


      }


      digitalWrite(ledPin, ledState);
    }

  }

  else if (pushpressed == 1) {

    Serial.println("pushpressed is true");

    ledState = LOW;

    digitalWrite(ledPin, ledState);

  }

}


void at8am() {                      // function to start
buzzing at 8am

  DateTime now = rtc.now();

  if (int(now.hour()) >= buzz8amHH) {

    if (int(now.minute()) >= buzz8amMM) {

      if (int(now.second()) > buzz8amSS) {

        ////////////////////////////////////////////////
/////


        startBuzz();

        ////////////////////////////////////////////////
/////
```

```
      }

    }

  }

}


void at2pm() {                              // function to
start buzzing at 2pm

  DateTime now = rtc.now();

  if (int(now.hour()) >= buzz2pmHH) {

    if (int(now.minute()) >= buzz2pmMM) {

      if (int(now.second()) > buzz2pmSS) {



        ////////////////////////////////////////////////
///

        startBuzz();

        ////////////////////////////////////////////////
//

      }

    }

  }

}
```

```
void at8pm() {                          // function to
start buzzing at 8pm

  DateTime now = rtc.now();

  if (int(now.hour()) >= buzz8pmHH) {

    if (int(now.minute()) >= buzz8pmMM) {

      if (int(now.second()) > buzz8pmSS) {



        ////////////////////////////////////////////////
/////

        startBuzz();

        ////////////////////////////////////////////////
/////

      }

    }

  }

}


//Screen Cycling

void changeScreen() {                  //function for
Screen Cycling
```

```
  // Start switching screen every defined intervalLCD

  if (currentMillisLCD - previousMillisLCD >
intervalLCD)             // save the last time you
changed the display

  {

    previousMillisLCD = currentMillisLCD;

    screens++;

    if (screens > maxScreen) {

      screens = 0;  // all screens over -> start from
1st

    }

    isScreenChanged = true;

  }


  // Start displaying current screen

  if (isScreenChanged)   // only update the screen if
the screen is changed.

  {

    isScreenChanged = false; // reset for next iteration

    switch (screens)

    {
      case getWellsoon:

        gwsMessege();                // get well soon
message

        break;

      case HELP_SCREEN:

        helpScreen();               // instruction
screen

        break;

      case TIME_SCREEN:

        timeScreen();                 // to print date
and time

        break;

      default:

        //NOT SET.

        break;

    }

  }

}
```