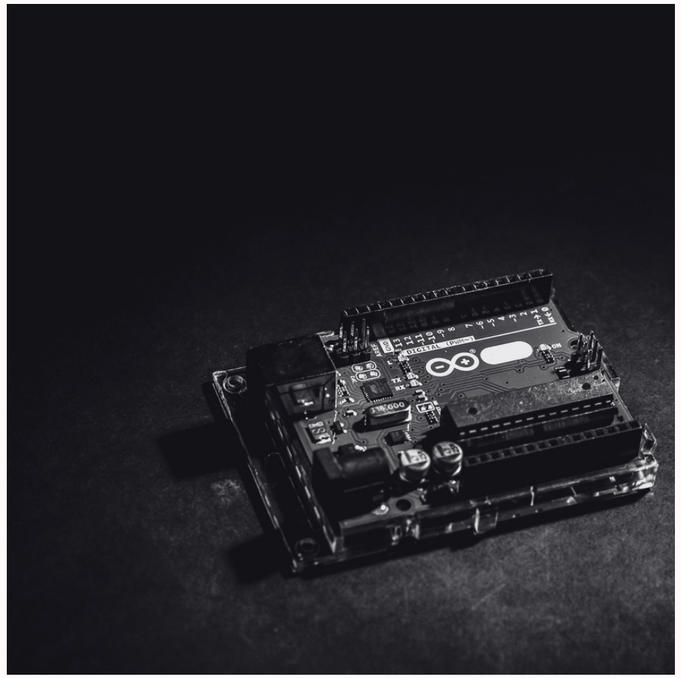
13

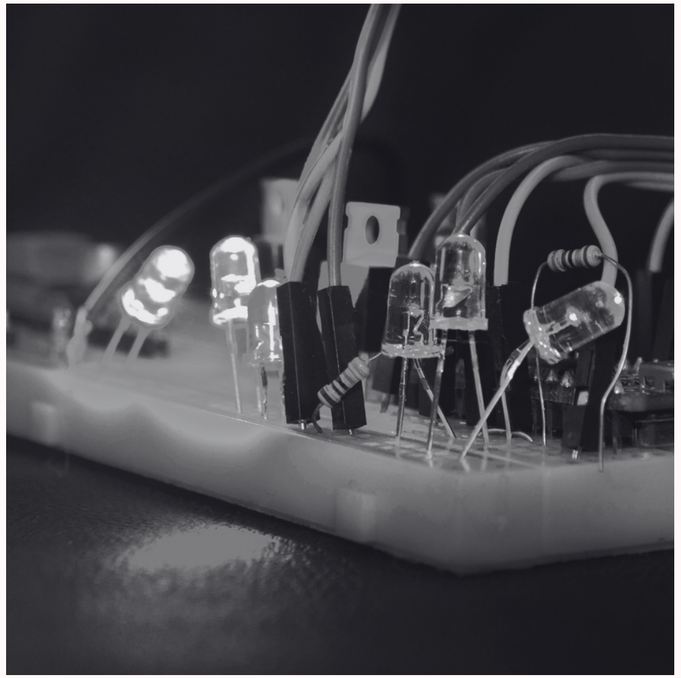


13 A

FILM NEGATIVE

FILM NEGATIVE

14



14 A

FILM NEGATIVE

SEF

SELF WITHOUT I (ELSE)

SLEEPY 3 FRIENDS

Huỳnh Lê Thủy Tiên

Nguyễn Đào Đức Quân

Nguyễn Lâm Thúy Phượng

PROBLEM

PANDEMIC

STAY HOME

BORED

SLEEP

Why we choose?

How many hours do you sleep per day?

After waking up your body is either tired or full of energy?

Sleep a lot, wake up still tired?

Sleep less, but wake up perky?

Ideal sleep

STAGE 1

"Dozing off", twitches, easy to wake up

STAGE 2

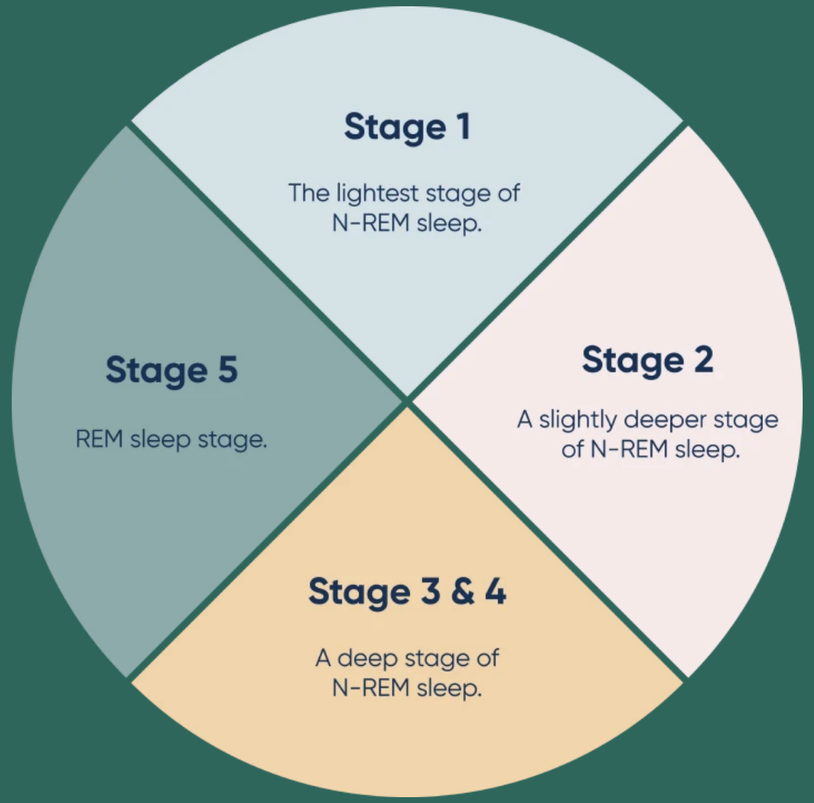
Drop in temperature, relaxed, slowed breathing and heart rate.

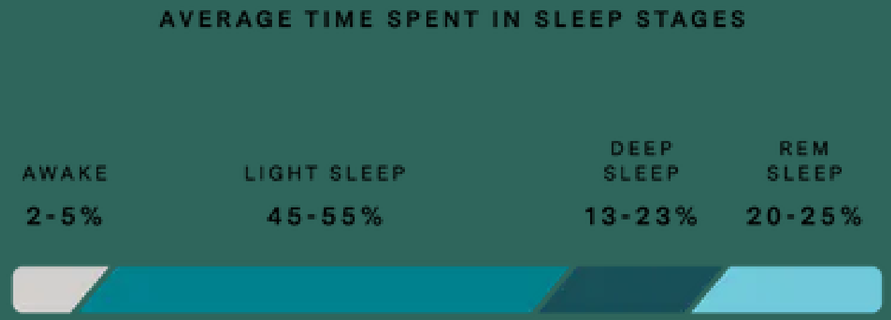
STAGE 3 & 4

Allowing for bodily recovery and growth, wake up -> will be tired

STAGE 5 (REM)

Dream, be essential to cognitive functions like memory, learning, and creativity

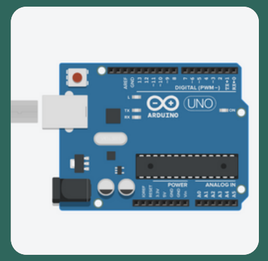




Algorithm

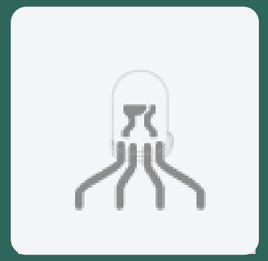
Wake up time = bedtime + (90 minutes x sleep cycle)
+ 14 minutes sleepless bald to sleep

HARDWARE REQUIRED

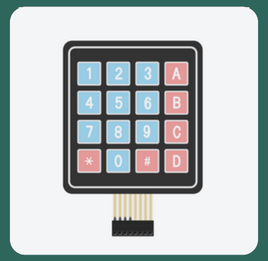


Arduino UNO Board

Resistor

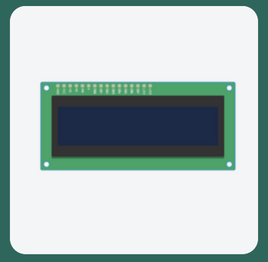


LED RGB



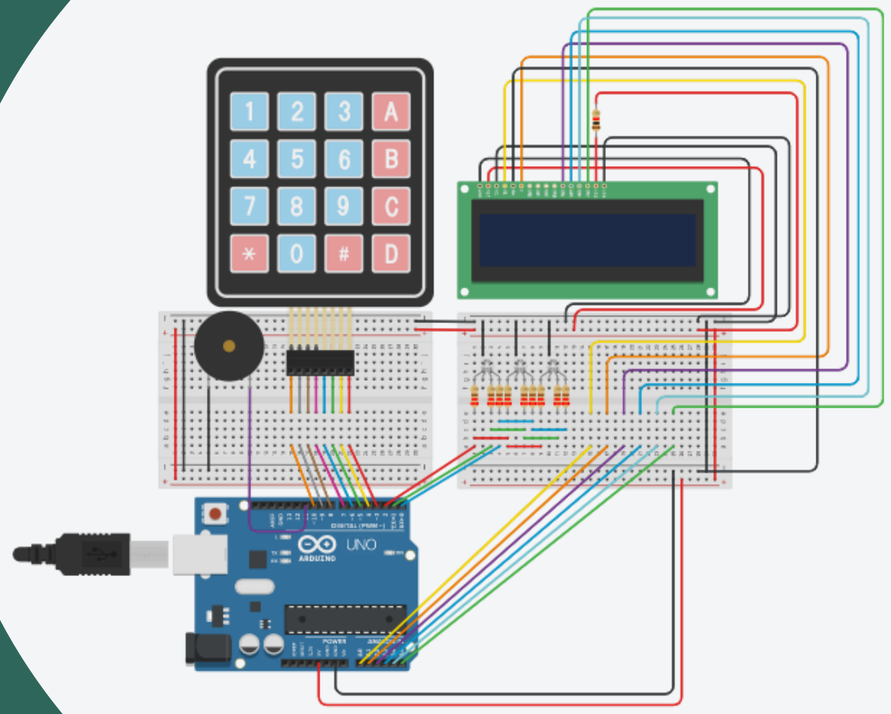
Keypad 4x4

Piezo

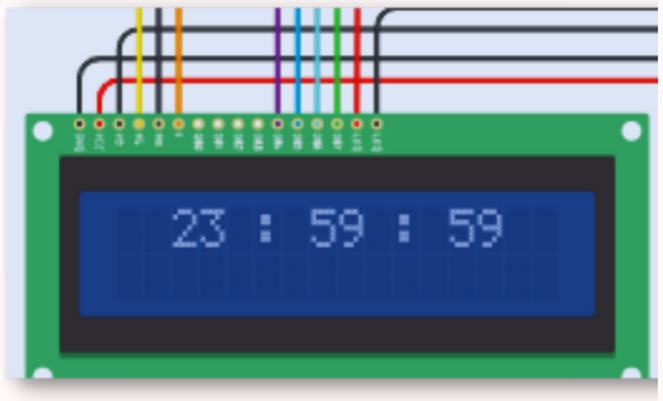


LCD 16x2

Equipment

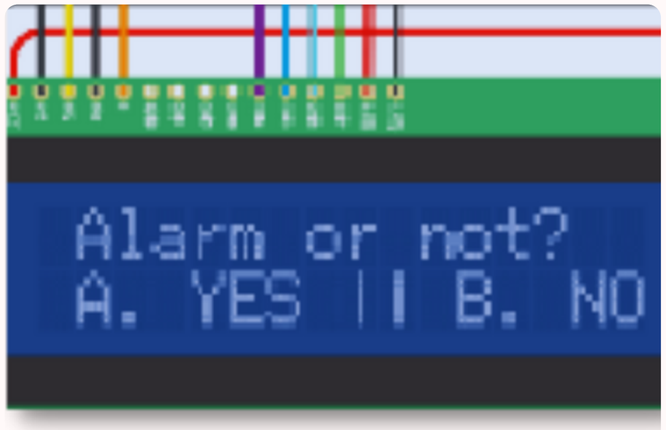


FUNCTION

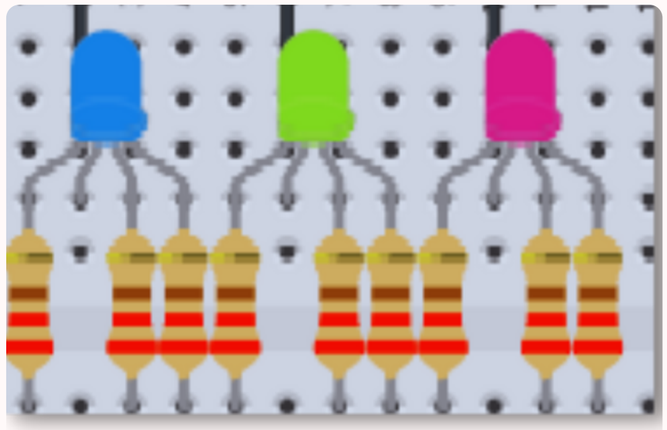


1. Clock display

2. Calculate wake up time (golden sleep timer)



3. Set alarm for golden sleep timer



4. Alarm and light display

CLOCK

CODE

```
void clock(){
  delay(1000);
  s++;
  if(s == 60)
  {
    m++;
    s = 0;
  }

  if(m == 60)
  {
    m = 0;
    h++;
  }

  if(h == 24)
  {
    h = 0;
  }

  if(h >=0 && h <=9)
  {
   lcd.setCursor(2,0);
   lcd.print("0");
   lcd.setCursor(3,0);
   lcd.print(h);
  }
  else
  {
   lcd.setCursor(2,0);
   lcd.print(h);
  }
  lcd.setCursor(5,0);
  lcd.print(":");

  if (m >=0 && m <=9)
  {
   lcd.setCursor(7,0);
   lcd.print("0");
   lcd.print(m);
  }
  else
  {
   lcd.setCursor(8,0);
   lcd.print(" ");
   lcd.setCursor(7,0);
   lcd.print(m);
  }

  lcd.setCursor(10,0);
  lcd.print(":");

  if(s >=0 && s <=9)
  {
   lcd.setCursor(12,0);
   lcd.print("0");
   lcd.print(s);
  }
  else
  {
   lcd.setCursor(13,0);
   lcd.print(" ");
   lcd.setCursor(12,0);
   lcd.print(s);
  }
  checkState();
}
```

GOLDEN SLEEP TIMER

CODE

```
void goldenSleepTimer() {
  char key1 = myKeypad.getKey();
  lcd.setCursor(1,0);
    lcd.print("Nhap Gio, Phut");
  if (key1)
    if (key1 != 'A' && key1 != 'B'
        && key1 != 'C' && key1 != 'D'
        && key1 != '#' && key1 != '*')
  {
    lcd.setCursor(5 + position,1);
    Serial.println(key1);
    position++;
    key1 = key1-48;

    switch(position){
    case 1: in1 = key1;
      lcd.print(in1);
    break;
    case 2: in2 = key1;
      lcd.print(in2);
      lcd.print("h");
      position++;
      break;
    case 4: in3 = key1;
      lcd.print(in3);
      break;
    case 5: in4 = key1;
      lcd.print(in4);
      delay(1000);
      lcd.clear();
      int1 = in1*10 + in2;
      int2 = in3*10 + in4;
      int1 = (int1 + divs(int2,60)) % 24;
      int2 = int2 % 60;
      position = 0;
      delay(1000);
      lcd.clear();
      lcd.print("Da nhap : ");
      lcd.setCursor(1,1);
      lcd.print(int1);
      lcd.print(" Gio ");
      lcd.print(int2);
      lcd.print(" Phut");
      position = 0;
      delay(3000);
      lcd.clear();

      lcd.setCursor(1,0);
      char meg[] ="4 thoi gian nen";
      for(int i=0;i<15;i++){
        lcd.print(meg[i]);
        delay(200);
      }
      lcd.setCursor(16, 0);
      lcd.autoscroll();
      char megw[] =" thuc";
      for(int i=0;i<5;i++){
        lcd.print(megw[i]);
        delay(200);
      }
      delay(2000);
      lcd.noAutoscroll();
      lcd.clear();

      for (i=0; i <= 3; i++) {
        lcd.setCursor(0,0);
        lcd.print(i+1);
        lcd.print(">");
        kqp[i] = 90*(i+3) + int2 + 14;
        kqg[i] = (int1 + divs(kqp[i], 60)) % 24;
        kqp[i] = kqp[i] % 60;
        lcd.print(kqg[i]);
        lcd.print(" Gio ");
        lcd.print(kqp[i]);
        lcd.print(" Phut");
        delay(3000);
        if (i < 3) {
          lcd.setCursor(5,1);
          lcd.print("Hoac");
          delay(2000);
        }
        lcd.clear();
      }
      mode = 3;
    }
}
```

SET ALARM

CODE

```
int melody[] = {
  NOTE_E5, NOTE_D5, NOTE_C5, NOTE_B4, NOTE_A4, NOTE_A4,
  NOTE_B4, NOTE_D5, NOTE_C5, NOTE_B4, NOTE_A4, 0,
  NOTE_E5, NOTE_D5, NOTE_C5, NOTE_B4, NOTE_A4, NOTE_A4,
  NOTE_GS4, NOTE_GS4, NOTE_B4, NOTE_GS4, NOTE_A4, 0 };
float noteDurations[] = {
  2,2,2,2,1,2,
  2,2,2,2,1,1,
  2,2,2,2,1,2,
  2,4,4,2,2,2};
```

```
void music() {
  s= s+20;
  for (int j=0; j <2; j++) {
    for (int thisNote = 0; thisNote < 24; thisNote++) {
      ledRGB();
      float noteDuration = 500/noteDurations[thisNote];
      tone(speakerPin, melody[thisNote],noteDuration);

      float pauseBetweenNotes = noteDuration * 1.30;
      delay(pauseBetweenNotes);

      noTone(speakerPin);
    }
    delay(1000);
  }
}
```

```
void ledRGB() {
  analogWrite(redPin, random(255));
  analogWrite(greenPin, random(255));
  analogWrite(bluePin, random(255));
}
```

DEMO

Thank you

Sleep is that golden chain that ties health and our bodies together.