TESTING

PROJECT TITLE :

IoT Based Safety Gadget for Child Safety Monitoring and Notification

TEAM ID : PNT2022TMID38886
TEAM LEADER : G.Monish
TEAM MEMBER 1 : V.Kamesh
TEAM MEMBER 2 : J.Surya
TEAM MEMBER 3 : S.Saravanan

INTRODUCTION:

Testing is based on the behaiviour of our application It is refered five parts of testing those are load testing,stress testing,spike testing,endurance testing,resilence testing.

LOAD TESTING:

Load test is depend up on the application speed our device is worked at more effective at all the time to performed in online space the load level testing result is minimum amount of load is uploaded and our application runs effectively it is depend up on our data speed and quality of the data .

STRESS TESTING:

Stress testing is referd to how much stress it will handeld in all stagies we upload the particular amount of stress its performed good it is advancement of of the crime rate security is having its alarming significance for school children,some applications exist to address issue and most of them internet connection which makes a solution expensive in this application we present a low cost solution and the stress test result is good .

SPIKE TESTING:

Spike testing is during the time how the system will behave or performe it , the monitoring system is performed in all time to our data connection and quality .if you want to connect your mobile to device set the particular time otherwise it will be off mode set the time to the app to connect a device example child's school timing to return to home timing our application is performed good .

ENDURANCE TESTING:

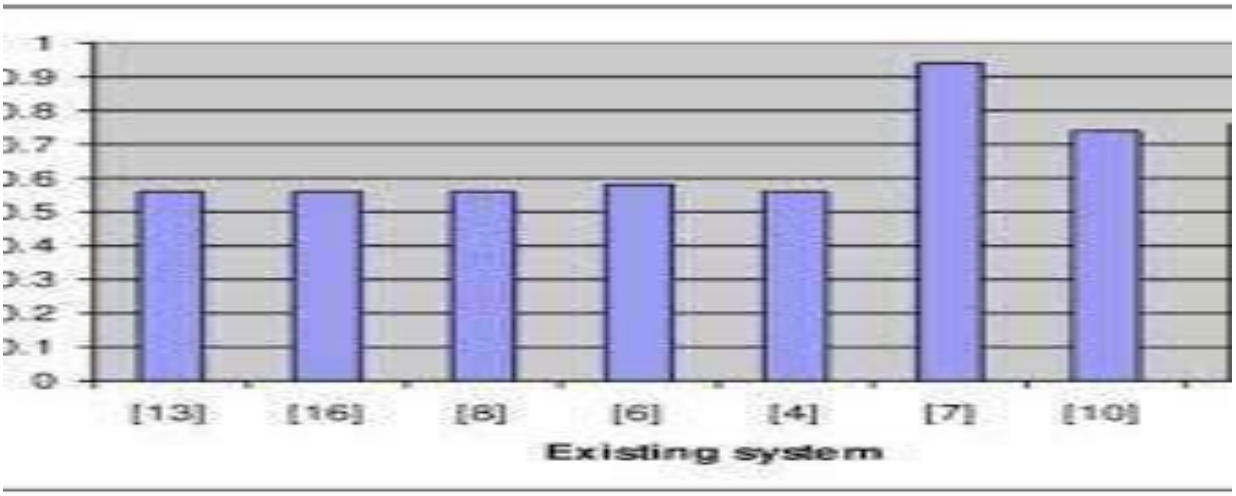
Endurance test will be approved to during the continuous stress how the application will serviced GPS provides the accurate data for tracking the children currently located and along with it also update the parents and ,GSM updates the sms to our parents mobile application this application is used to support child health care laevel and the notification is send to our parents or guide ‘s mobile , panic button is performed minimum level of stress to using good.

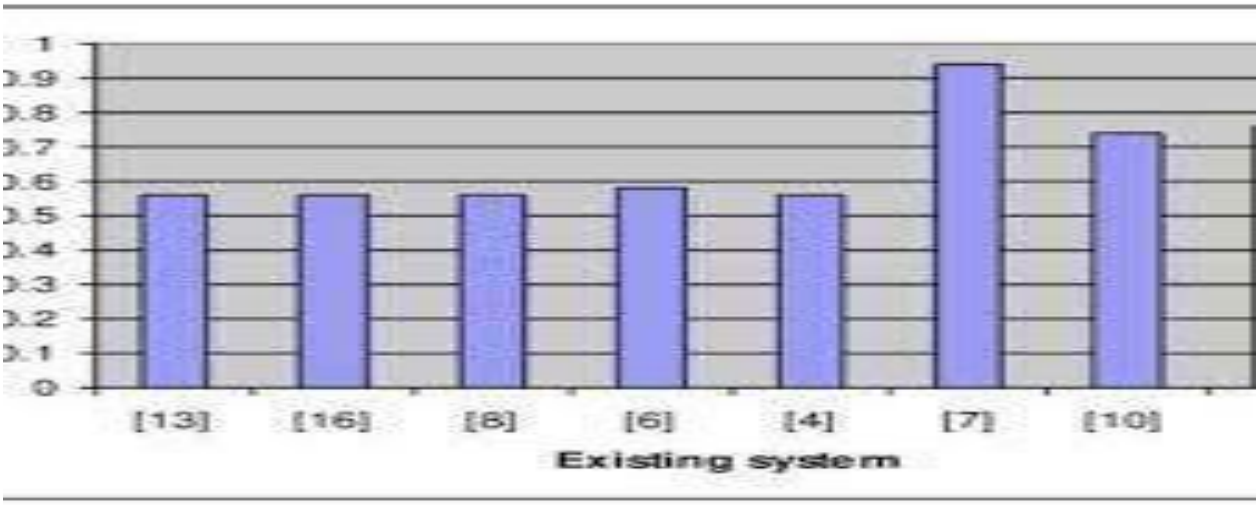
RESILENCE TESTING:

It is divided to two phase active and passive node ,active node whenever node is comming that node will pick the load if active node is down the passive is pick the load automatically the testing result is good

SAMPLE GRAPH:

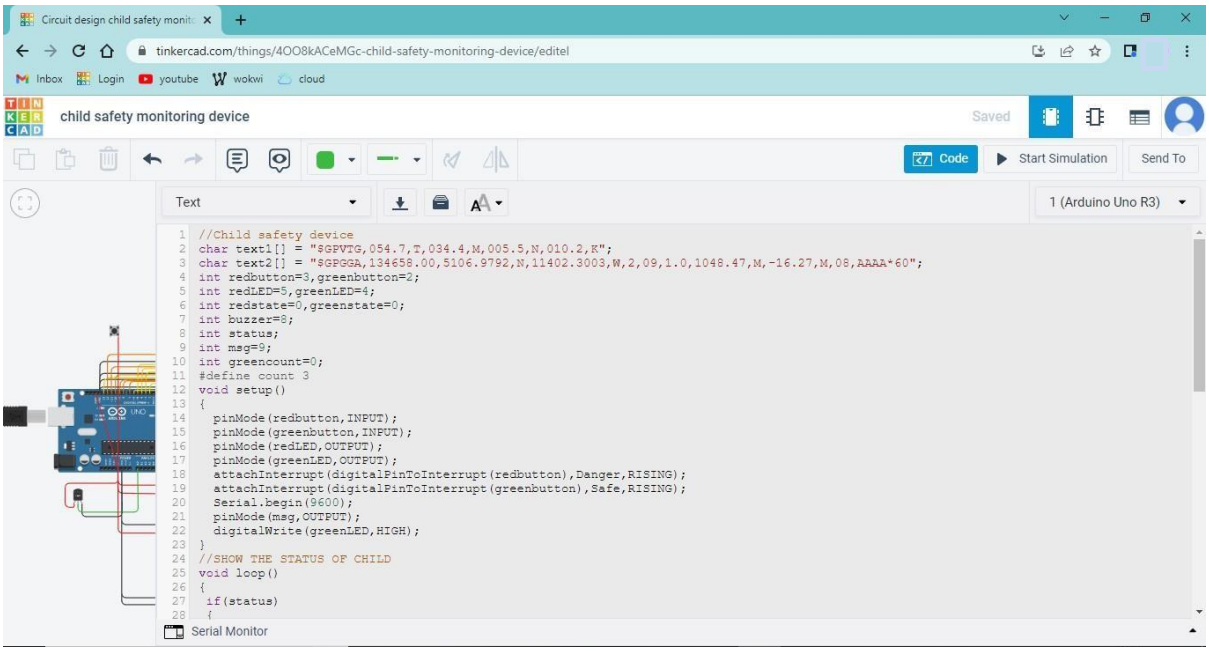
Steady state

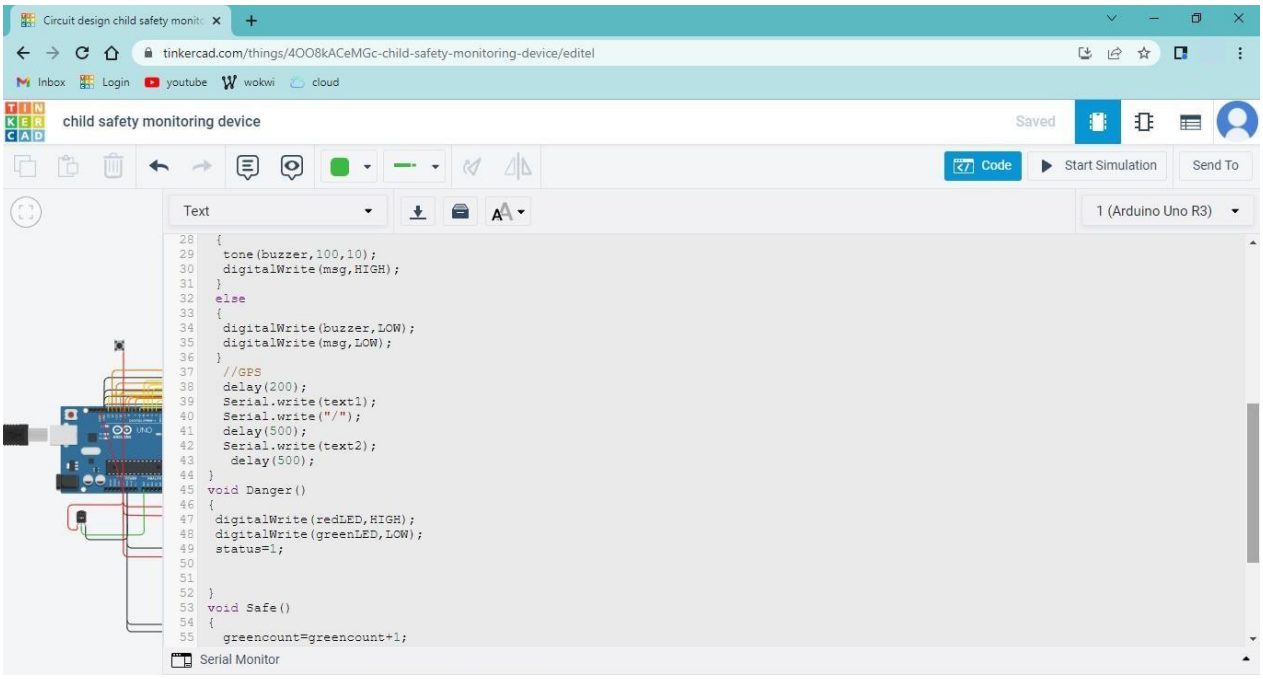


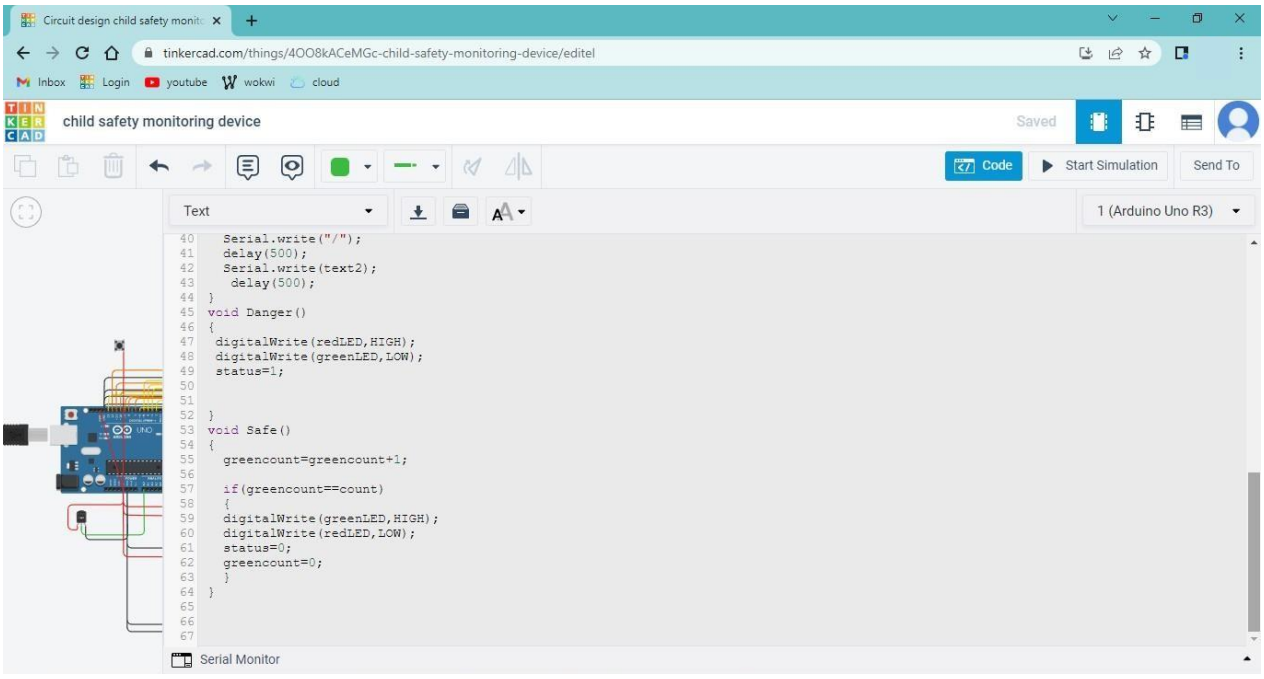


Arudino-1

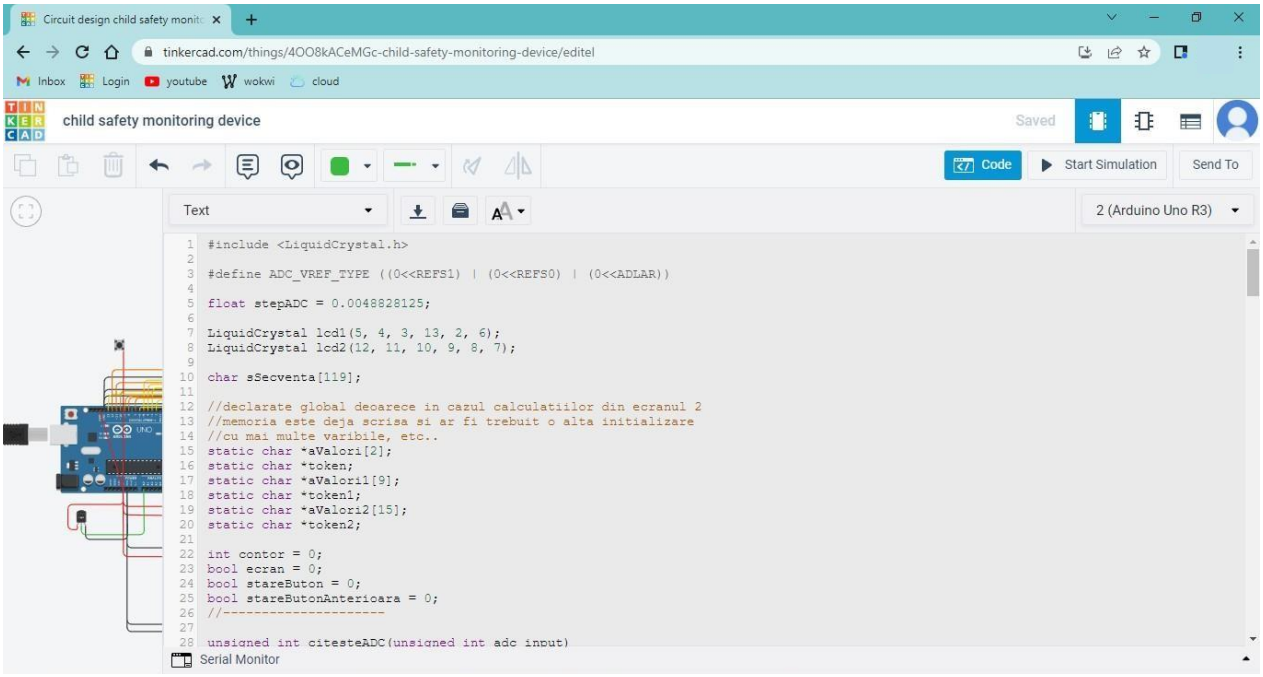
Child safety device

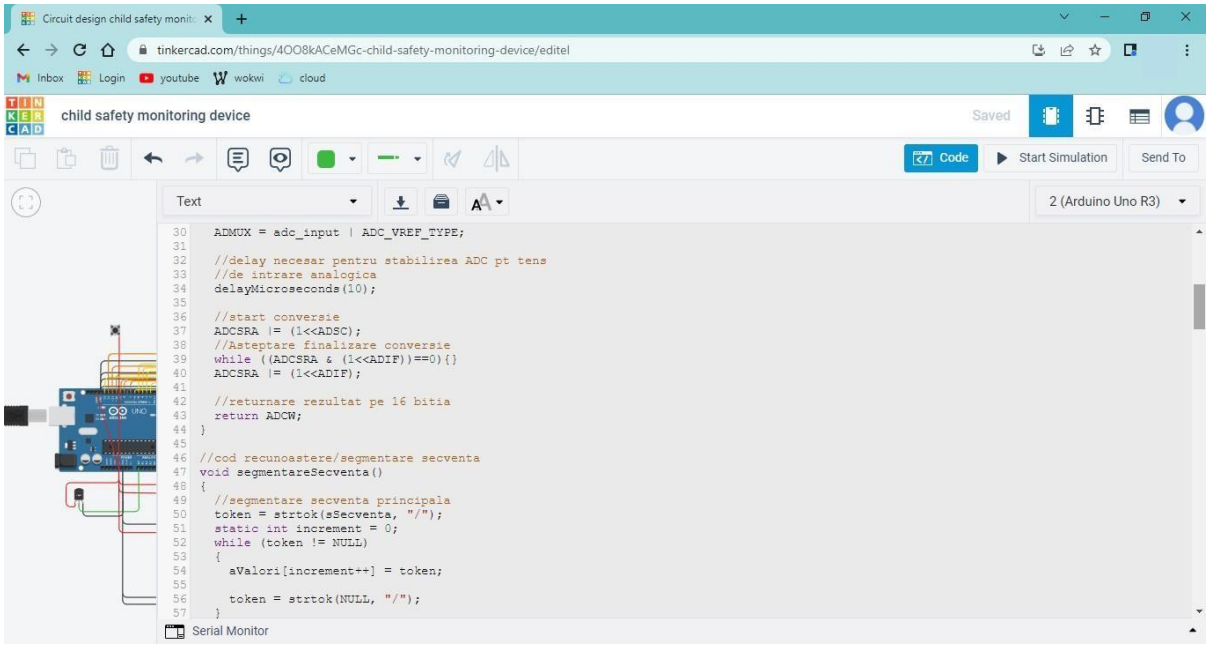


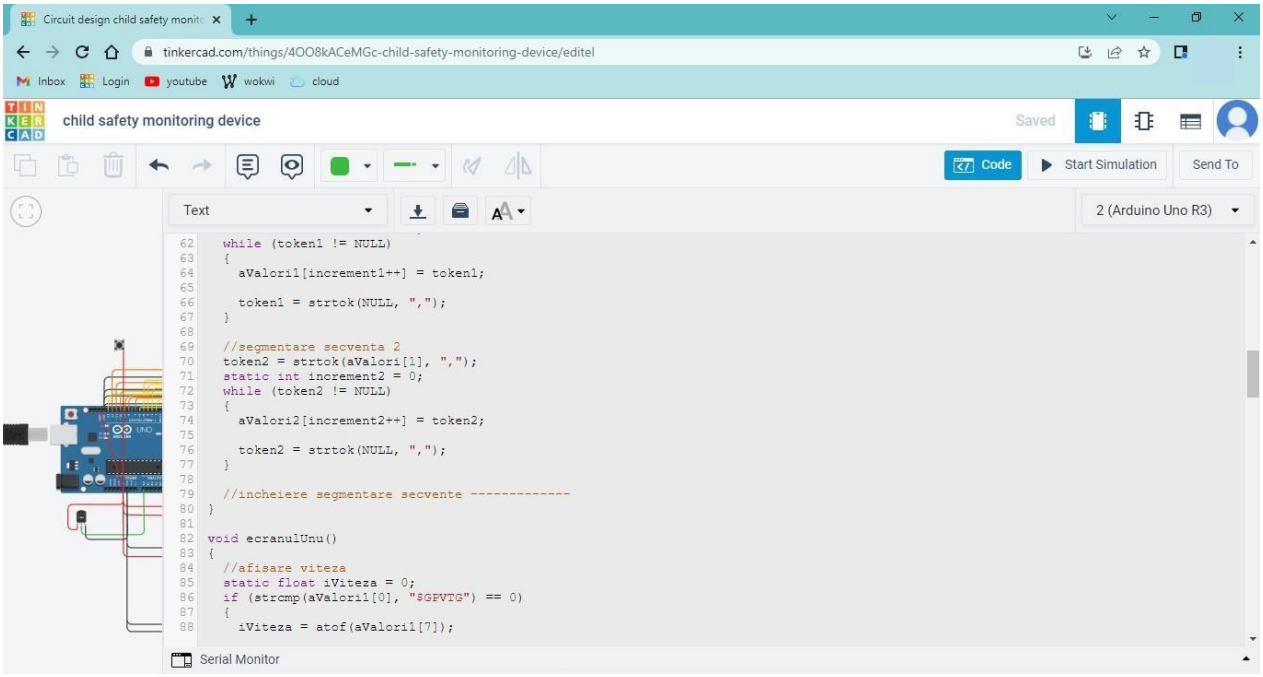

Circuit design child safety monito
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Code
Start Simulation
Send To
Text
1 (Arduino Uno R3)
{
tone(buzzer,100,10);
digitalWrite(msg,HIGH);
}
else
{
digitalWrite(buzzer,LOW);
digitalWrite(msg,LOW);
}
//GPS
delay(200);
Serial.write(text1);
Serial.write("/");
delay(500);
Serial.write(text2);
delay(500);
}
void Danger()
{
digitalWrite(redLED,HIGH);
digitalWrite(greenLED,LOW);
status=1;
}
void Safe()
{
greencount=greencount+1;
Serial Monitor


Circuit design child safety monito
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Code
Start Simulation
Send To
Text
1 (Arduino Uno R3)
Serial.write("/");
delay(500);
Serial.write(text2);
delay(500);
}
void Danger()
{
digitalWrite(redLED,HIGH);
digitalWrite(greenLED,LOW);
status=1;
}
void Safe()
{
greencount=greencount+1;
if(greencount==count)
{
digitalWrite(greenLED,HIGH);
digitalWrite(redLED,LOW);
status=0;
greencount=0;
}
}
Serial Monitor

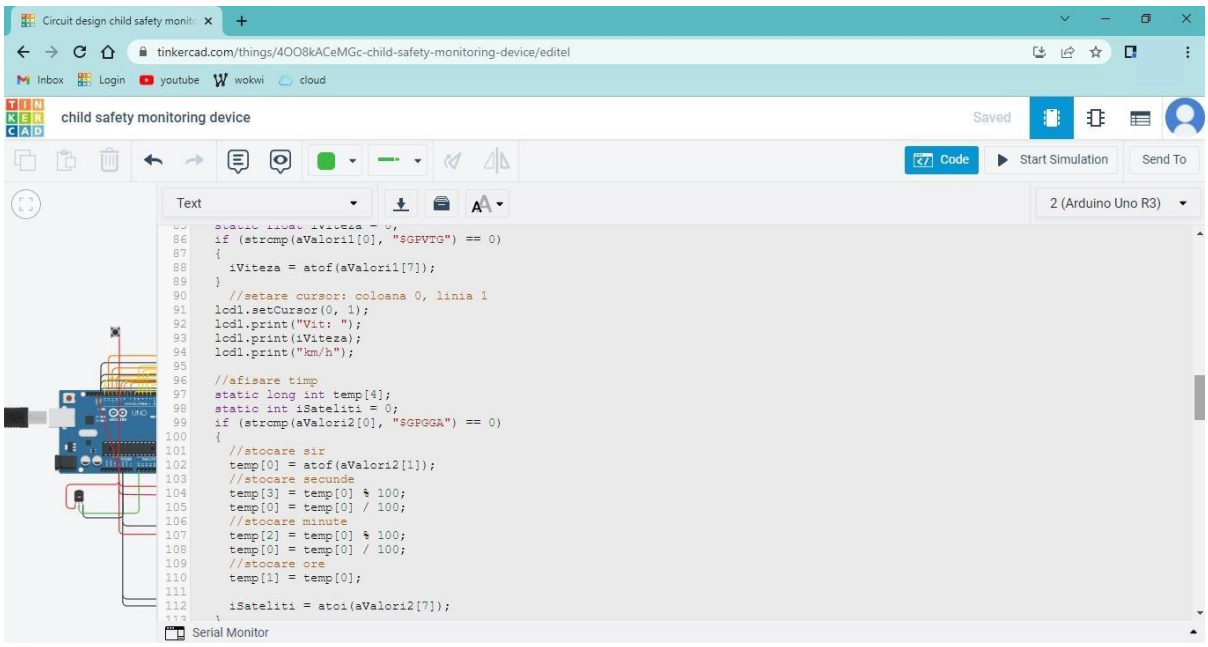
Arudino-2


Circuit design child safety monit
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Code
Start Simulation
Send To
Text
2 (Arduino Uno R3)
#include <LiquidCrystal.h>
#define ADC_VREF_TYPE ((0<<REFS1) | (0<<REFS0) | (0<<ADLAR))
float stepADC = 0.0048828125;
LiquidCrystal lcd1(5, 4, 3, 13, 2, 6);
LiquidCrystal lcd2(12, 11, 10, 9, 8, 7);
char sSecventa[119];
//declarate global deoarece in cazul calculatiilor din ecranul 2
//memoria este deja scrisa si ar fi trebuit o alta initializare
//cu mai multe varibile, etc..
static char *aValori[2];
static char *token;
static char *aValori1[9];
static char *token1;
static char *aValori2[15];
static char *token2;
int contor = 0;
bool ecran = 0;
bool stareButon = 0;
bool stareButonAnterioara = 0;
//----------------------
unsigned int citesteADC(unsigned int adc input)
Serial Monitor

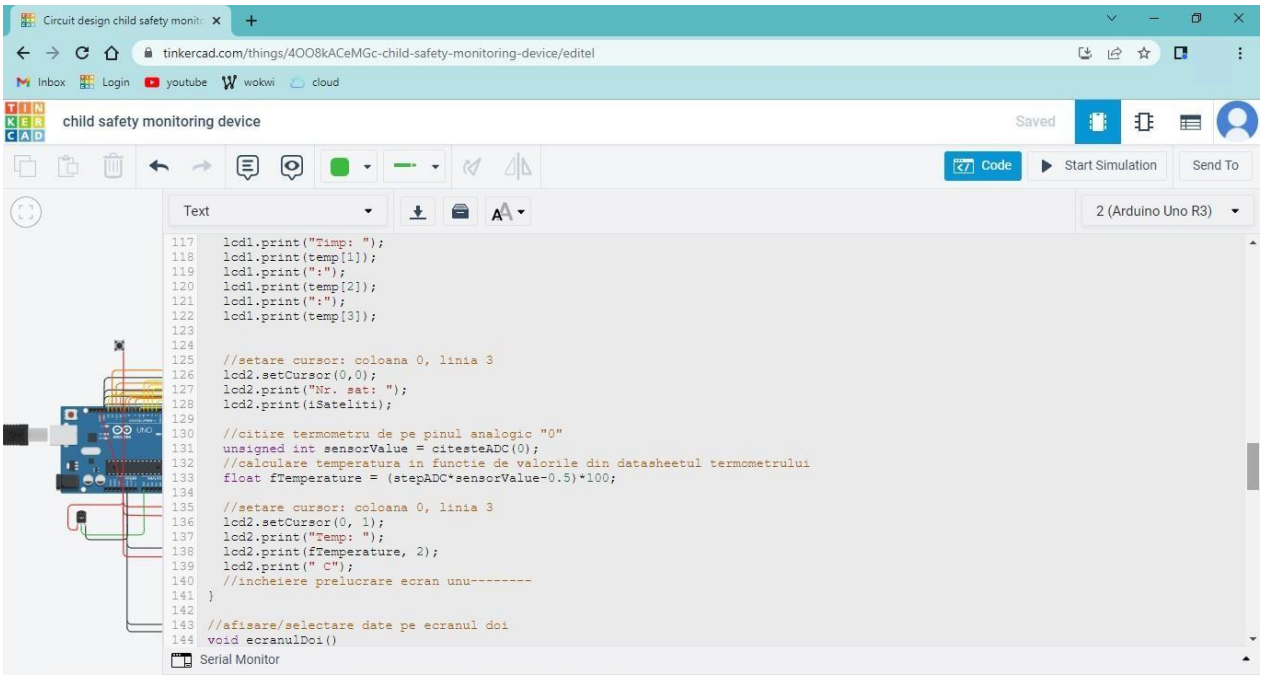

Circuit design child safety monit
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Code
Start Simulation
Send To
Text
2 (Arduino Uno R3)
ADMUX = adc_input | ADC_VREF_TYPE;
//delay necesar pentru stabilirea ADC pt tens
//de intrare analogica
delayMicroseconds(10);
//start conversie
ADCSRA |= (1<<ADSC);
//Asteptare finalizare conversie
while ((ADCSRA & (1<<ADIF))==0){}
ADCSRA |= (1<<ADIF);
//returnare rezultat pe 16 bitia
return ADCW;
}
//cod recunoastere/segmentare secventa
void segmentareSecventa()
{
//segmentare secventa principala
token = strtok(sSecventa, "/");
static int increment = 0;
while (token != NULL)
{
aValori[increment++] = token;
token = strtok(NULL, "/");
}
Serial Monitor

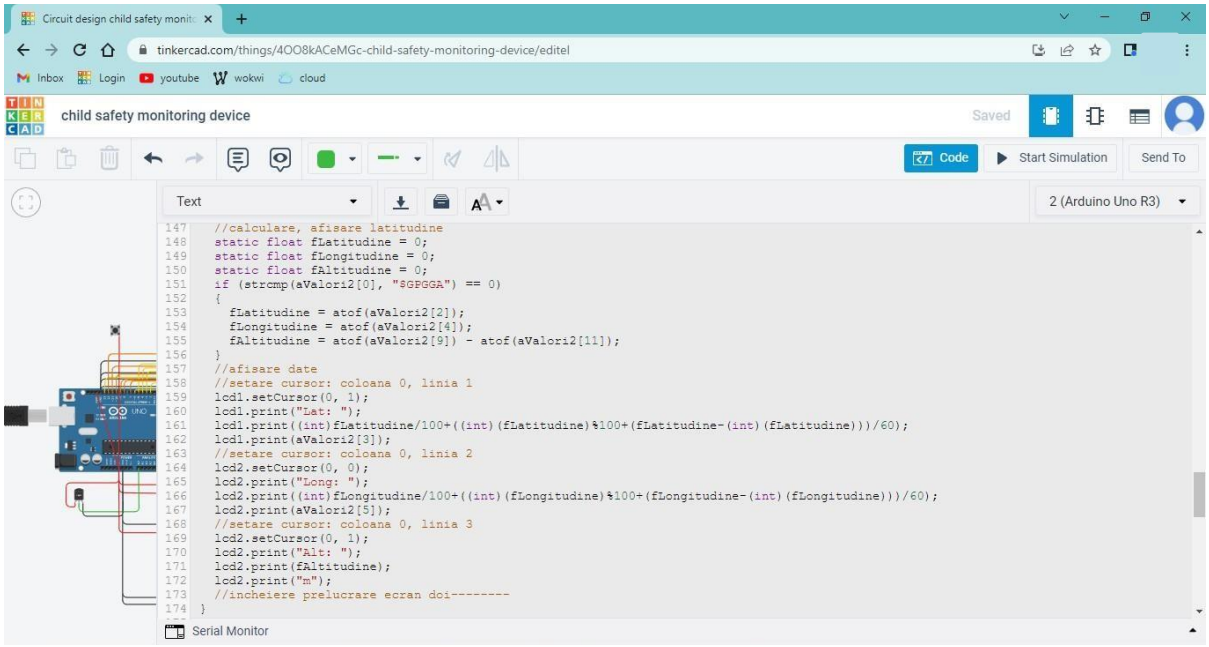


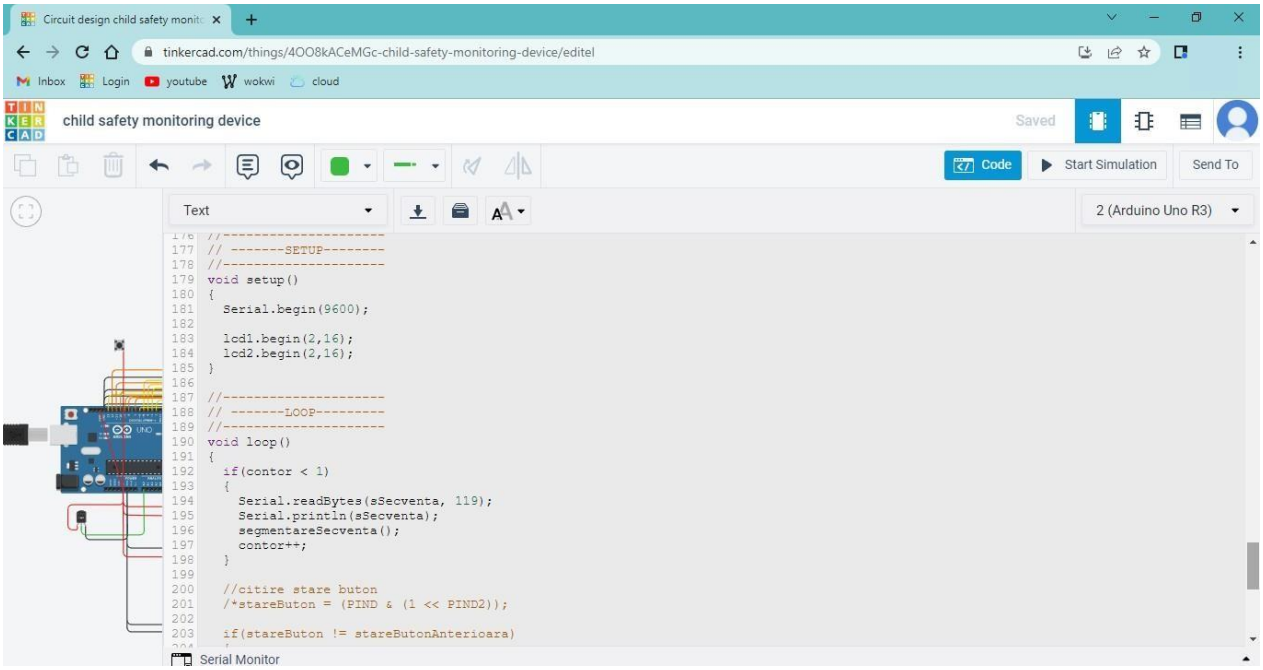

```
  while (token1 != NULL)
  {
    aValori1[increment1++] = token1;

    token1 = strtok(NULL, ",");
  }

  //segmentare secventa 2
  token2 = strtok(aValori[1], ",");
  static int increment2 = 0;
  while (token2 != NULL)
  {
    aValori2[increment2++] = token2;

    token2 = strtok(NULL, ",");
  }

  //incheiere segmentare secvente ------------
}

void ecranulUnu()
{
  //afisare viteza
  static float iViteza = 0;
  if (strcmp(aValori1[0], "$GPVTG") == 0)
  {
    iViteza = atof(aValori1[7]);
```

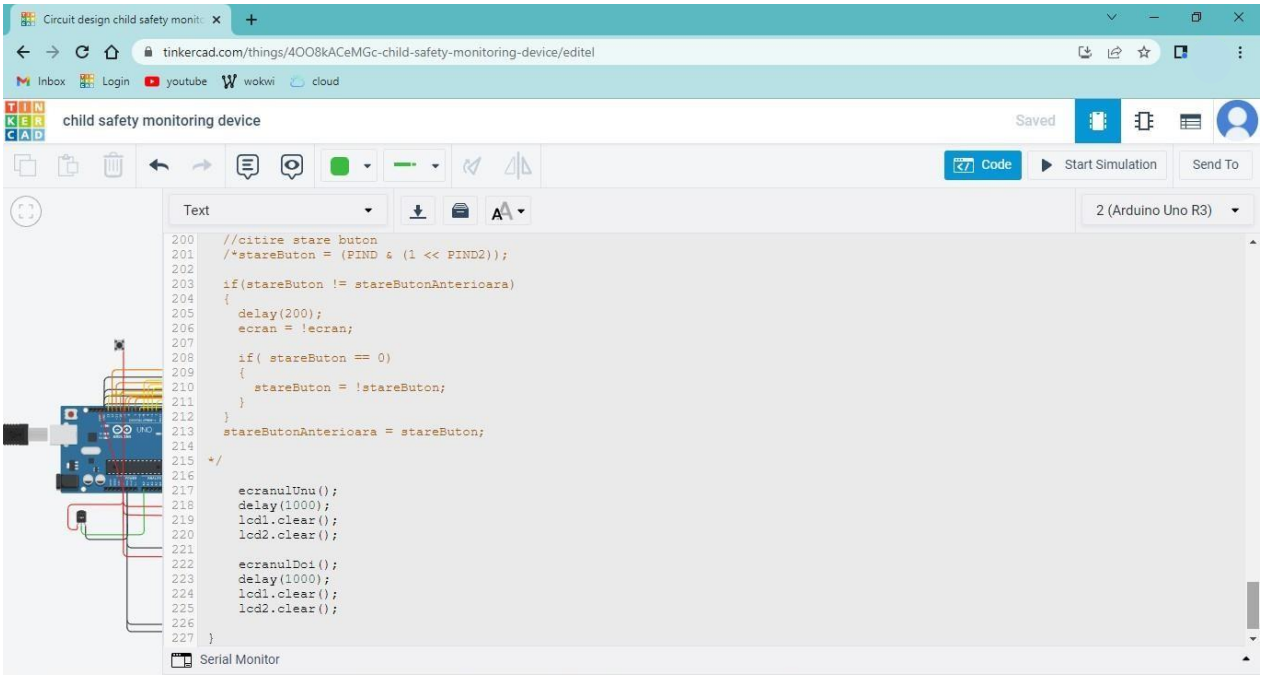



```
  if (strcmp(aValori1[0], "$GPVTG") == 0)
  {
    iViteza = atof(aValori1[7]);
  }
    //setare cursor: coloana 0, linia 1
  lcd1.setCursor(0, 1);
  lcd1.print("Vit: ");
  lcd1.print(iViteza);
  lcd1.print("km/h");

  //afisare timp
  static long int temp[4];
  static int iSateliti = 0;
  if (strcmp(aValori2[0], "$GPGGA") == 0)
  {
    //stocare sir
    temp[0] = atof(aValori2[1]);
    //stocare secunde
    temp[3] = temp[0] % 100;
    temp[0] = temp[0] / 100;
    //stocare minute
    temp[2] = temp[0] % 100;
    temp[0] = temp[0] / 100;
    //stocare ore
    temp[1] = temp[0];

    iSateliti = atoi(aValori2[7]);
```


Circuit design child safety monit
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Code
Start Simulation
Send To
Text
2 (Arduino Uno R3)
lcd1.print("Timp: ");
lcd1.print(temp[1]);
lcd1.print(":");
lcd1.print(temp[2]);
lcd1.print(":");
lcd1.print(temp[3]);
//setare cursor: coloana 0, linia 3
lcd2.setCursor(0,0);
lcd2.print("Nr. sat: ");
lcd2.print(iSateliti);
//citire termometru de pe pinul analogic "0"
unsigned int sensorValue = citesteADC(0);
//calculare temperatura in functie de valorile din datasheetul termometrului
float fTemperature = (stepADC*sensorValue-0.5)*100;
//setare cursor: coloana 0, linia 3
lcd2.setCursor(0, 1);
lcd2.print("Temp: ");
lcd2.print(fTemperature, 2);
lcd2.print(" C");
//incheiere prelucrare ecran unu--------
}
//afisare/selectare date pe ecranul doi
void ecranulDoi()
Serial Monitor

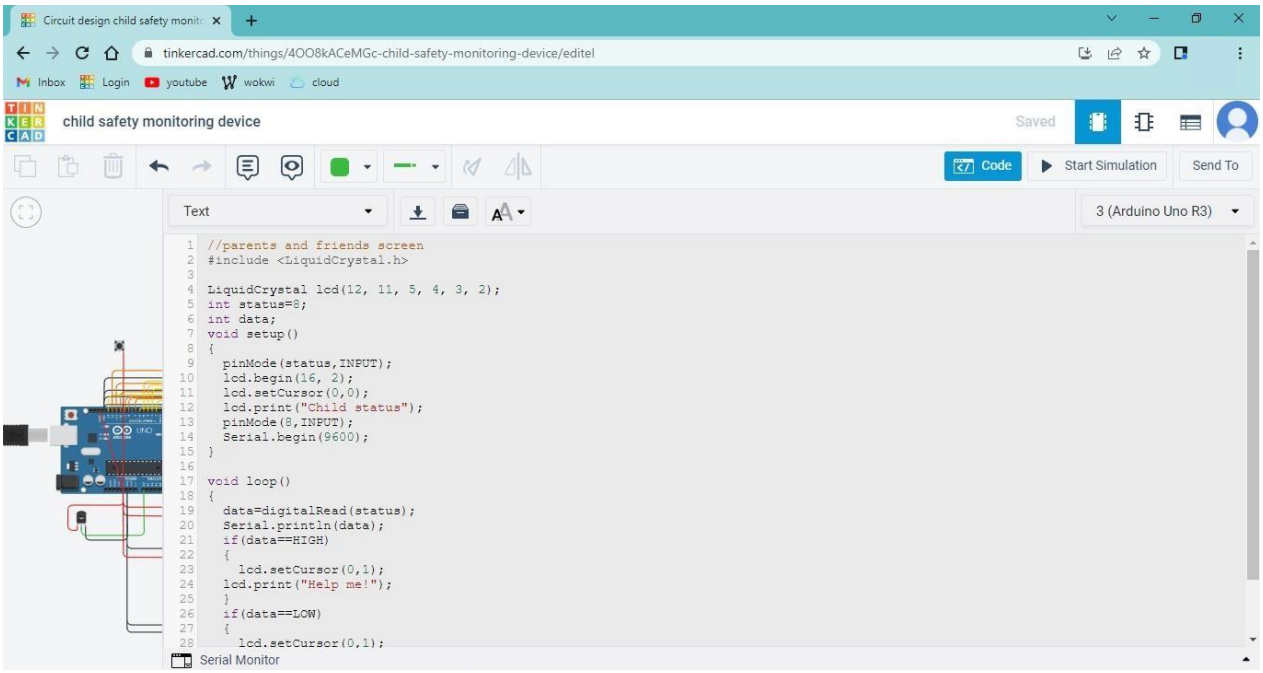

Circuit design child safety monit
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Code
Start Simulation
Send To
Text
2 (Arduino Uno R3)
//calculare, afisare latitudine
static float fLatitudine = 0;
static float fLongitudine = 0;
static float fAltitudine = 0;
if (strcmp(aValori2[0], "$GPGGA") == 0)
{
fLatitudine = atof(aValori2[2]);
fLongitudine = atof(aValori2[4]);
fAltitudine = atof(aValori2[9]) - atof(aValori2[11]);
}
//afisare date
//setare cursor: coloana 0, linia 1
lcd1.setCursor(0, 1);
lcd1.print("Lat: ");
lcd1.print((int)fLatitudine/100+((int)(fLatitudine)%100+(fLatitudine-(int)(fLatitudine)))/60);
lcd1.print(aValori2[3]);
//setare cursor: coloana 0, linia 2
lcd2.setCursor(0, 0);
lcd2.print("Long: ");
lcd2.print((int)fLongitudine/100+((int)(fLongitudine)%100+(fLongitudine-(int)(fLongitudine)))/60);
lcd2.print(aValori2[5]);
//setare cursor: coloana 0, linia 3
lcd2.setCursor(0, 1);
lcd2.print("Alt: ");
lcd2.print(fAltitudine);
lcd2.print("m");
//incheiere prelucrare ecran doi--------
}
Serial Monitor

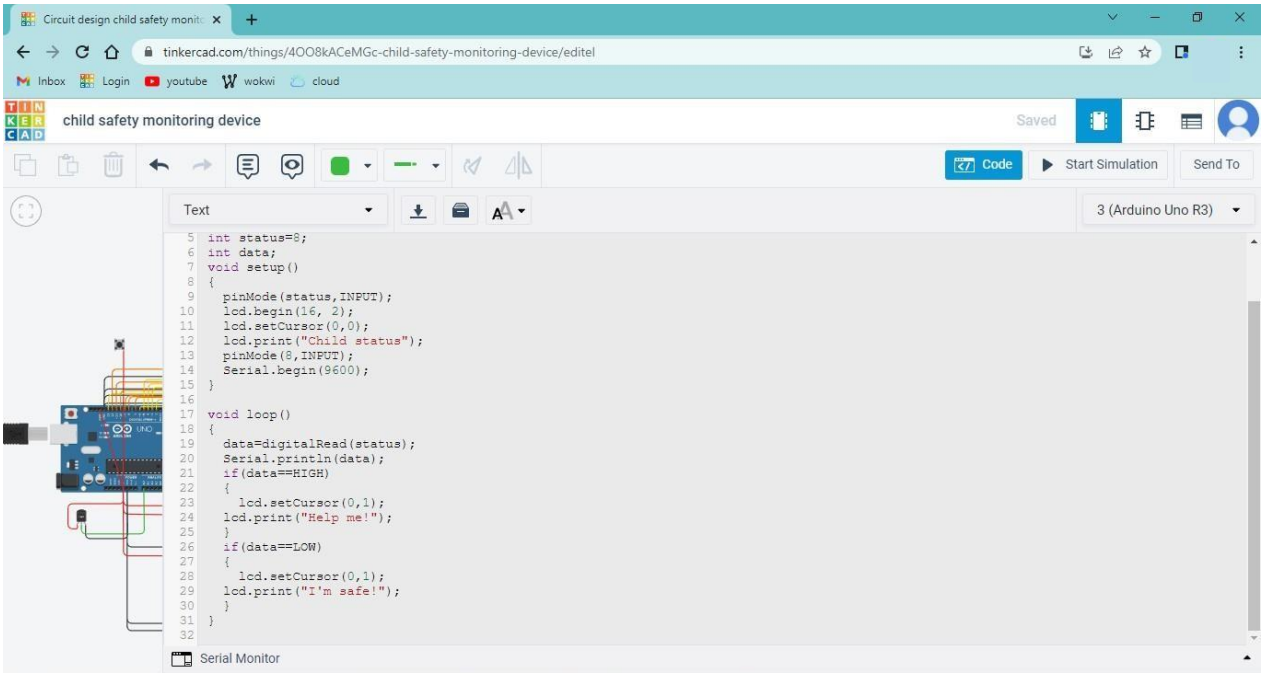




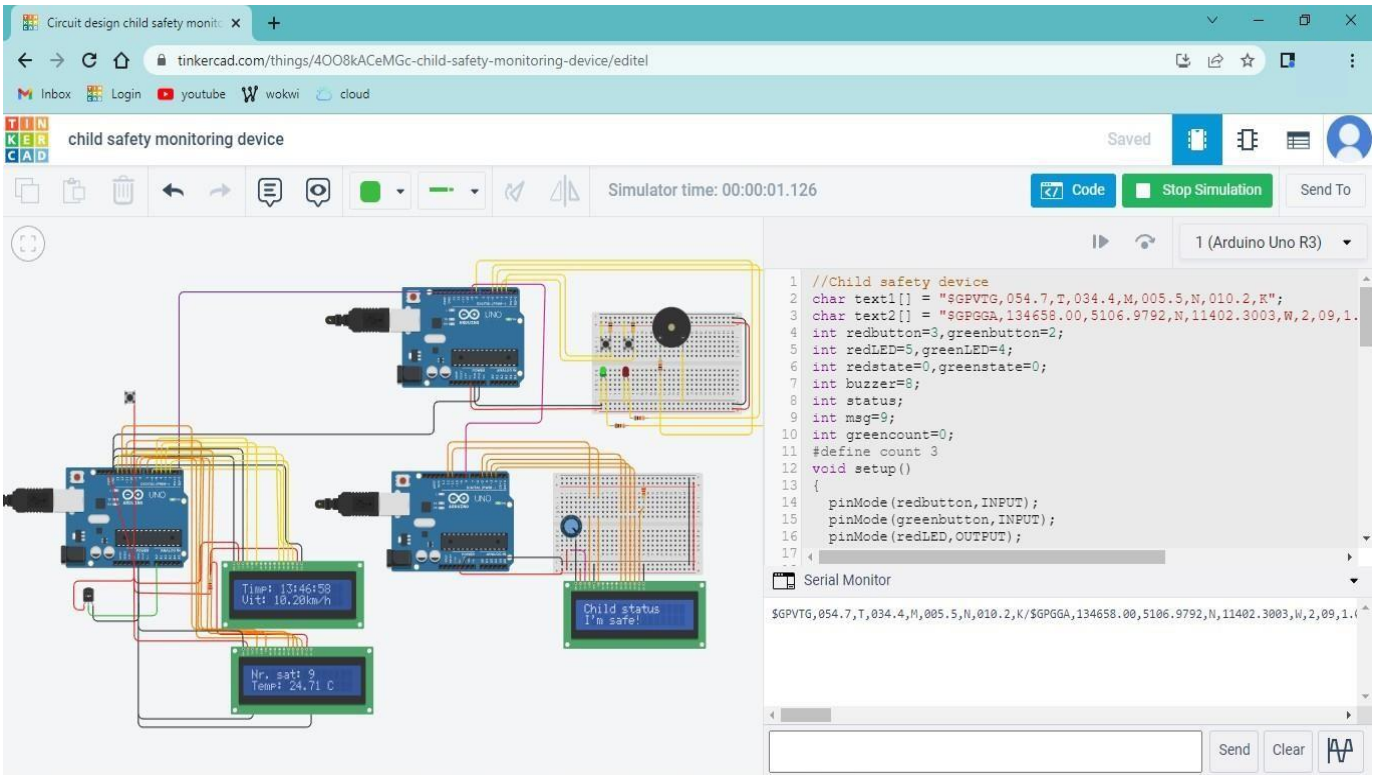
Arudino-3

Parents and friends Screen





User Acceptance testing:


Circuit design child safety monitc
tinkercad.com/things/4OO8kACeMGc-child-safety-monitoring-device/editel
Inbox
Login
youtube
wokwi
cloud
child safety monitoring device
Saved
Simulator time: 00:00:01.126
Code
Stop Simulation
Send To
1 (Arduino Uno R3)
//Child safety device
char text1[] = "$GPVTG,054.7,T,034.4,M,005.5,N,010.2,K";
char text2[] = "$GPGGA,134658.00,5106.9792,N,11402.3003,W,2,09,1.
int redbutton=3,greenbutton=2;
int redLED=5,greenLED=4;
int redstate=0,greenstate=0;
int buzzer=8;
int status;
int msg=9;
int greencount=0;
#define count 3
void setup()
{
pinMode(redbutton,INPUT);
pinMode(greenbutton,INPUT);
pinMode(redLED,OUTPUT);
Serial Monitor
$GPVTG,054.7,T,034.4,M,005.5,N,010.2,K/$GPGGA,134658.00,5106.9792,N,11402.3003,W,2,09,1.
Send
Clear
Time: 13:46:58
Vit: 10.20km/h
Nr. sat: 9
Temp: 24.71 C
Child status
I'm safe!