

# TESTING

## PROJECT TITLE :

IoT Based Safety Gadget for Child Safety Monitoring and Notification

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## INTRODUCTION:

Testing is based on the behaviour of our application. It is referred to five parts of testing: those are load testing, stress testing, spike testing, endurance testing, and resilience testing.

## LOAD TESTING:

Load test depends on the application speed. Our device works at more effectively at all the time to be performed in online space. The load level testing result is minimum amount of load is uploaded and our application runs effectively. It depends on our data speed and quality of the data.

## STRESS TESTING:

Stress testing is referred to how much stress it will handle in all stages. We upload the particular amount of stress. It is performed good. It is an advancement of the crime rate security. It is having its alarming significance for school children. Some applications exist to address the 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 perform 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:

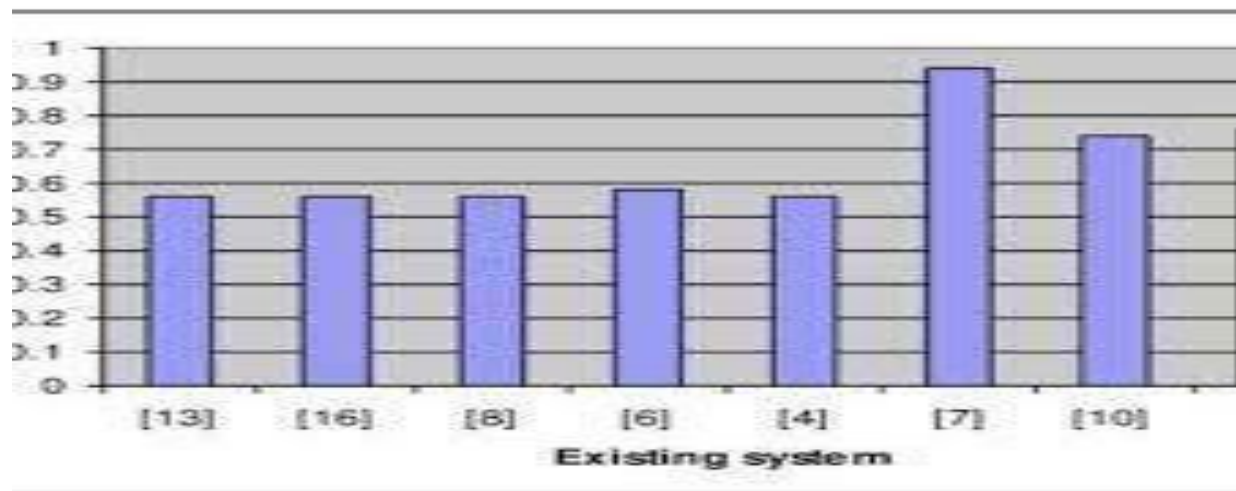
Endurance test will be approved to during the continuous stress how the application will serviced GPS provides the accurate data for tracking the children currently located and along with it also update the parents and ,GSM updates the sms to our parents mobile application this application is used to 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.

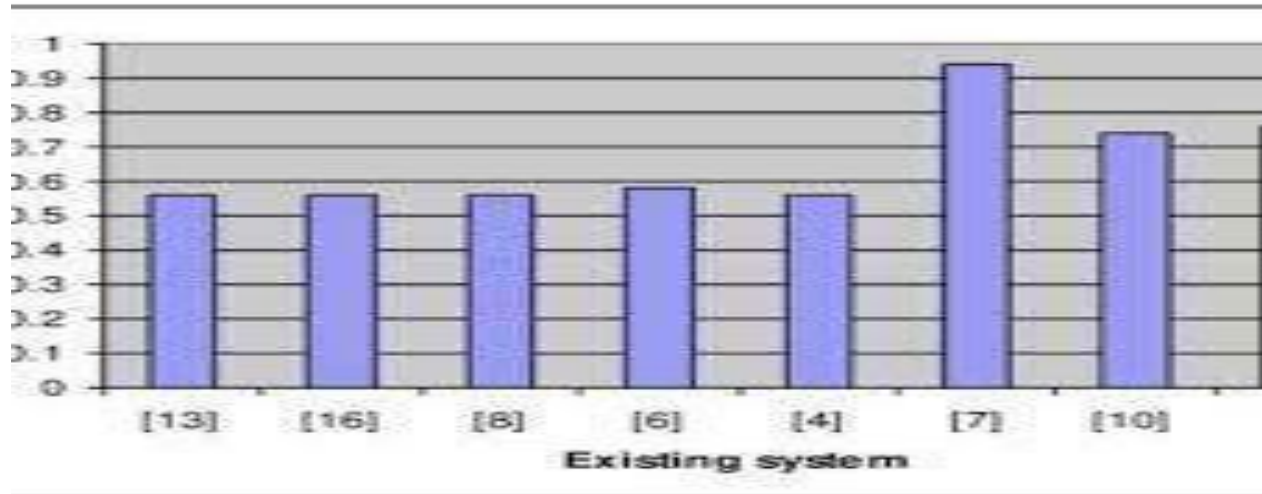
## RESILENCE TESTING:

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



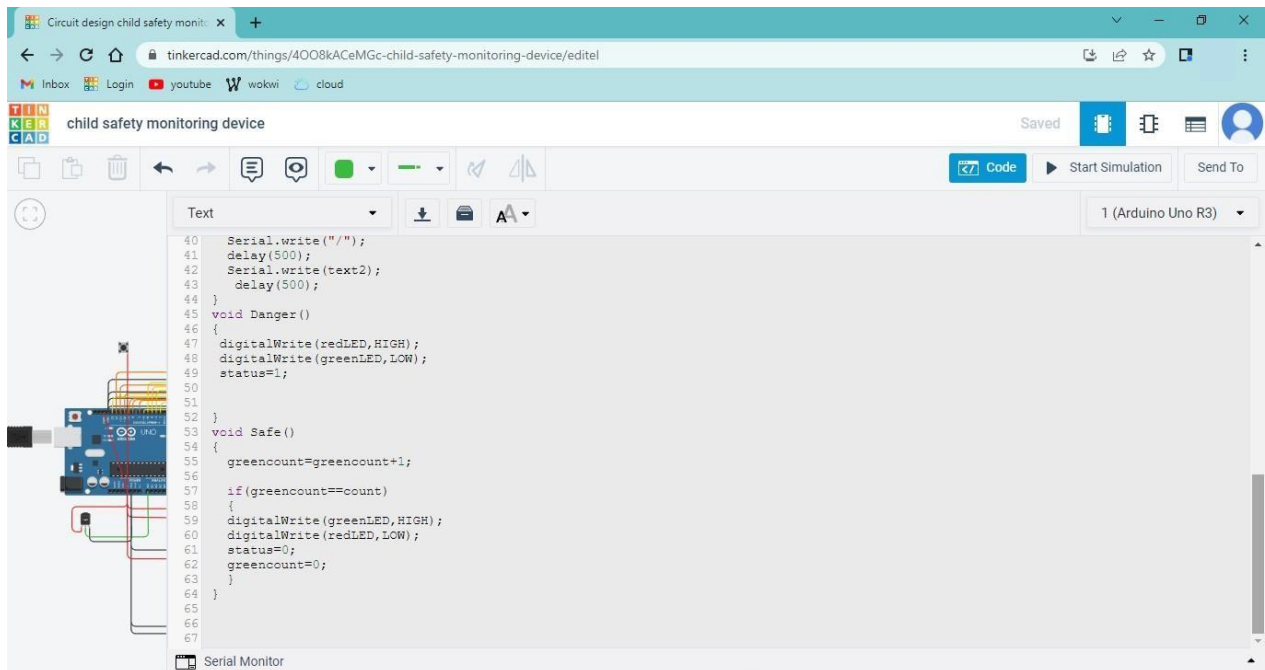
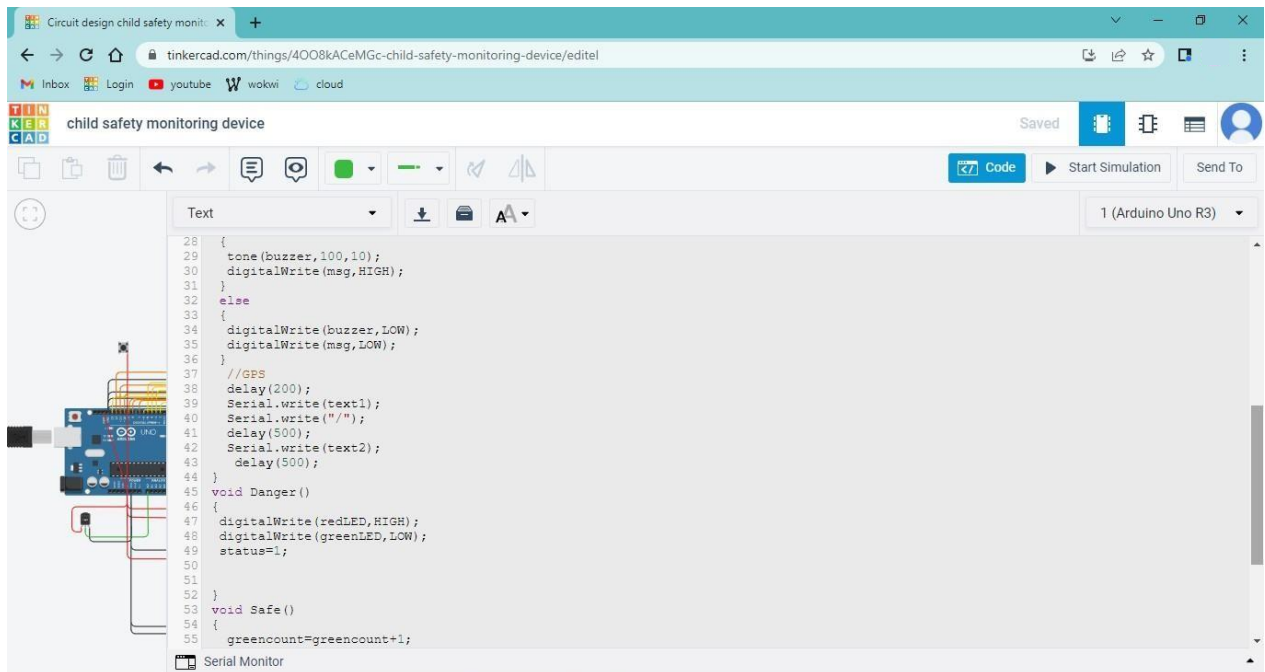


## Arudino-1

### Child safety device

The screenshot shows the Tinkercad web interface. On the left, a circuit diagram of an Arduino Uno R3 is shown with various components connected. On the right, the code editor displays the following code:

```
1 //Child safety device
2 char text1[] = "$GPVTG,054.7,T,034.4,M,005.5,N,010.2,K";
3 char text2[] = "$GPGGA,1.34658.00,5106.9792,N,11402.3003,W,2.09,1.0,1048.47,M,-16.27,M,08,AAAA*60";
4 int redbutton=3,greenbutton=2;
5 int redLED=5,greenLED=4;
6 int redstate=0,greenstate=0;
7 int buzzer=8;
8 int status;
9 int msg=9;
10 int greencount=0;
11 #define count 3
12 void setup()
13 {
14   pinMode(redbutton,INPUT);
15   pinMode(greenbutton,INPUT);
16   pinMode(redLED,OUTPUT);
17   pinMode(greenLED,OUTPUT);
18   attachInterrupt(digitalPinToInterrupt(redbutton),Danger,RISING);
19   attachInterrupt(digitalPinToInterrupt(greenbutton),Safe,RISING);
20   Serial.begin(9600);
21   pinMode(msg,OUTPUT);
22   digitalWrite(greenLED,HIGH);
23 }
24 //SHOW THE STATUS OF CHILD
25 void loop()
26 {
27   if(status)
28   {
```



## Arudino-2

Circuit design child safety monitor: x +

tinkercad.com/things/4008kACeMGc-child-safety-monitoring-device/editel

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child safety monitoring device Saved

Code Start Simulation Send To

2 (Arduino Uno R3)

```
1 #include <LiquidCrystal.h>
2
3 #define ADC_VREF_TYPE ((0<<REFS1) | (0<<REFS0) | (0<<ADLAR))
4
5 float stepADC = 0.0048828125;
6
7 LiquidCrystal lcd1(5, 4, 3, 13, 2, 6);
8 LiquidCrystal lcd2(12, 11, 10, 9, 8, 7);
9
10 char sSecventa[119];
11
12 //declare global deoarece in cazul calculatiilor din ecranul 2
13 //memoria este deja scrisa si ar fi trebuit o alta initializare
14 //cu mai multe variabile, etc..
15 static char *aValori[2];
16 static char *token;
17 static char *aValori1[9];
18 static char *token1;
19 static char *aValori2[15];
20 static char *token2;
21
22 int conor = 0;
23 bool ecran = 0;
24 bool stareButon = 0;
25 bool stareButonAnterioara = 0;
26 //-----
27
28 unsigned int citesteADC(unsigned int adc input)
```

Serial Monitor

Circuit design child safety monitor: x +

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Code Start Simulation Send To

2 (Arduino Uno R3)

```
30 ADMUX = adc_input | ADC_VREF_TYPE;
31
32 //delay necesar pentru stabilirea ADC pt tens
33 //de intrare analogica
34 delayMicroseconds(10);
35
36 //start conversie
37 ADCSRA |= (1<<ADSC);
38 //asteptare finalizare conversie
39 while ((ADCSRA & (1<<ADIF))!=0){}
40 ADCSRA |= (1<<ADIF);
41
42 //returnare rezultat pe 16 bitia
43 return ADCW;
44
45 //cod recunoastere/segmentare secventa
46 void segmentareSecventa()
47 {
48 //segmentare secventa principala
49 token = strtok(sSecventa, "/");
50 static int increment = 0;
51 while (token != NULL)
52 {
53 aValori[increment++] = token;
54 token = strtok(NULL, "/");
55 }
56
57 }
```

Serial Monitor

Circuit design child safety monit- x +

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Code Start Simulation Send To

2 (Arduino Uno R3)

```
62 while (token1 != NULL)
63 {
64     aValori1[increment1++] = token1;
65     token1 = strtok(NULL, ",");
66 }
67
68 //segmentare secventa 2
69 token2 = strtok(aValori1[1], ",");
70 static int increment2 = 0;
71 while (token2 != NULL)
72 {
73     aValori2[increment2++] = token2;
74     token2 = strtok(NULL, ",");
75 }
76
77 //incheiere segmentare secvente -----
78 }
79
80 void ecranulUnu()
81 {
82     //afisare viteza
83     static float iViteza = 0;
84     if (strcmp(aValori1[0], "SGPVTR") == 0)
85     {
86         iViteza = atof(aValori1[7]);
87     }
88 }
```

Serial Monitor

Circuit design child safety monit- x +

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Code Start Simulation Send To

2 (Arduino Uno R3)

```
85 static float iViteza = 0;
86 if (strcmp(aValori1[0], "SGPVTR") == 0)
87 {
88     iViteza = atof(aValori1[7]);
89 }
90 //setare cursor: coloana 0, linia 1
91 lcd.setCursor(0, 1);
92 lcd.print("Vit: ");
93 lcd.print(iViteza);
94 lcd.print("km/h");
95
96 //afisare timp
97 static long int temp[4];
98 static int iSateliti = 0;
99 if (strcmp(aValori2[0], "SGPGGA") == 0)
100 {
101     //stocare sir
102     temp[0] = atof(aValori2[1]);
103     //stocare secunde
104     temp[3] = temp[0] % 100;
105     temp[0] = temp[0] / 100;
106     //stocare minute
107     temp[2] = temp[0] % 100;
108     temp[0] = temp[0] / 100;
109     //stocare ore
110     temp[1] = temp[0];
111
112     iSateliti = atoi(aValori2[7]);
113 }
```

Serial Monitor

Circuit design child safety monit: X +

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Code Start Simulation Send To

2 (Arduino Uno R3)

```
117 lcd1.print("Temp: ");
118 lcd1.print(temp[1]);
119 lcd1.print(":");
120 lcd1.print(temp[2]);
121 lcd1.print(":");
122 lcd1.print(temp[3]);
123
124
125 //setare cursor: coloana 0, linia 3
126 lcd2.setCursor(0,0);
127 lcd2.print("Mr. sat: ");
128 lcd2.print(isateliti);
129
130 //citire termometru de pe pinul analogic "0"
131 unsigned int sensorValue = citesteADC(0);
132 //calculare temperatura in functie de valorile din datasheetul termometrului
133 float fTemperature = (stepADC*sensorValue-0.5)*100;
134
135 //setare cursor: coloana 0, linia 3
136 lcd2.setCursor(0, 1);
137 lcd2.print("Temp: ");
138 lcd2.print(fTemperature, 2);
139 lcd2.print(" c");
140 //incheiere prelucrare ecran unu-----
141 }
142
143 //afisare/selectare date pe ecranul doi
144 void ecranulDoi()
```

Serial Monitor

Circuit design child safety monit: X +

tinkercad.com/things/4008kACeMGc-child-safety-monitoring-device/editel

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child safety monitoring device

Saved

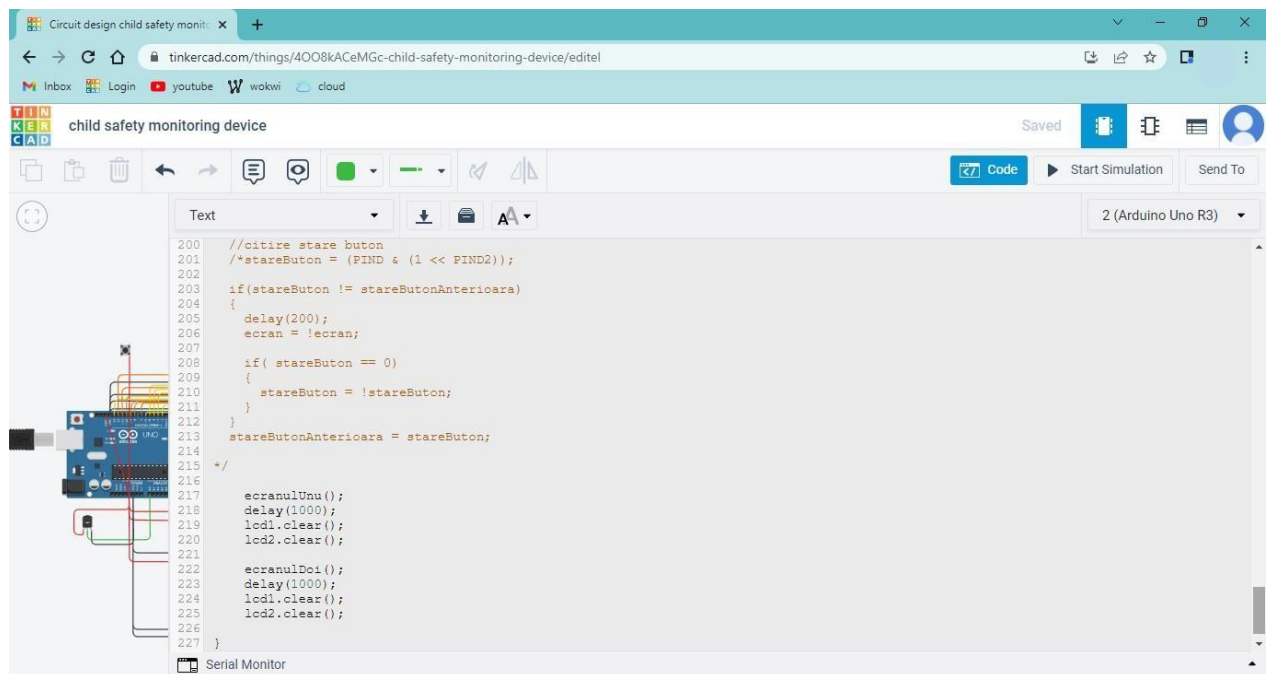
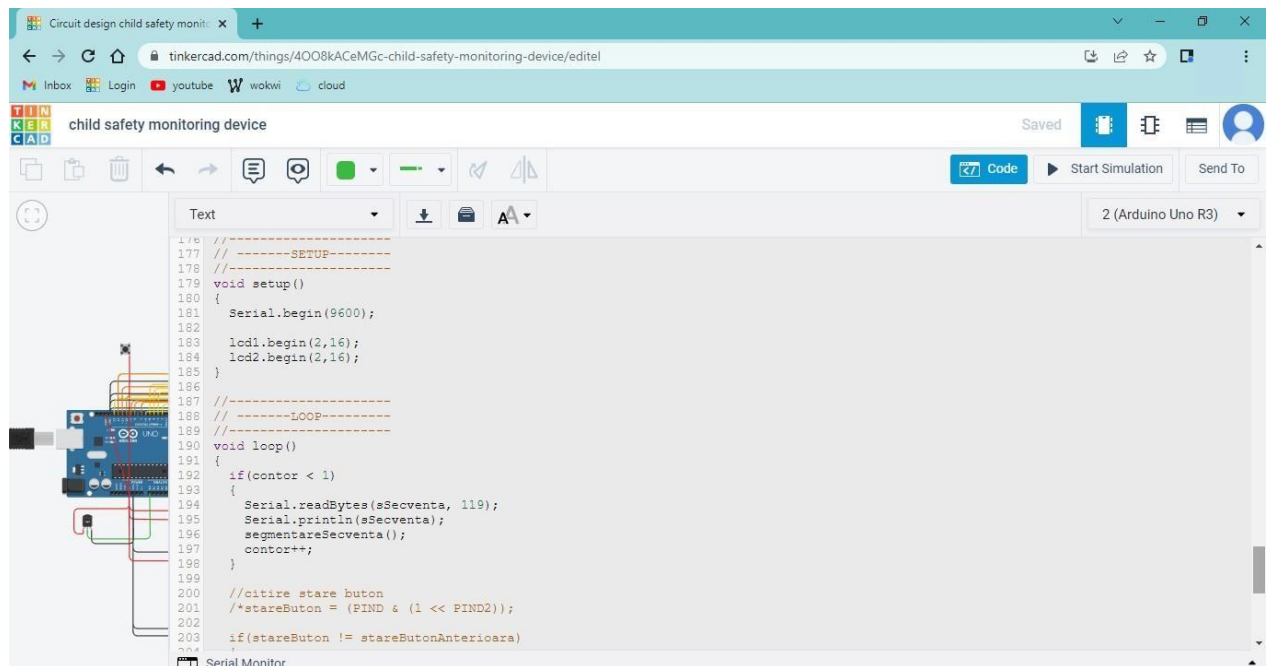
Code Start Simulation Send To

2 (Arduino Uno R3)

```
147 //calculare, afisare latitudine
148 static float fLatitudine = 0;
149 static float fLongitudine = 0;
150 static float fAltitudine = 0;
151 if (strcmp(aValori2[0], "SGPGGA") == 0)
152 {
153     fLatitudine = atof(aValori2[2]);
154     fLongitudine = atof(aValori2[4]);
155     fAltitudine = atof(aValori2[9]) - atof(aValori2[11]);
156 }
157 //afisare date
158 //setare cursor: coloana 0, linia 1
159 lcd1.setCursor(0, 1);
160 lcd1.print("Lat: ");
161 lcd1.print((int)fLatitudine/100+((int)(fLatitudine%100+(fLatitudine-(int)(fLatitudine))/60));
162 lcd1.print(aValori2[3]);
163 //setare cursor: coloana 0, linia 2
164 lcd2.setCursor(0, 0);
165 lcd2.print("Long: ");
166 lcd2.print((int)fLongitudine/100+((int)(fLongitudine%100+(fLongitudine-(int)(fLongitudine))/60));
167 lcd2.print(aValori2[5]);
168 //setare cursor: coloana 0, linia 3
169 lcd2.setCursor(0, 1);
170 lcd2.print("Alt: ");
171 lcd2.print(fAltitudine);
172 lcd2.print("m");
173 //incheiere prelucrare ecran doi-----
174 }
```

Serial Monitor

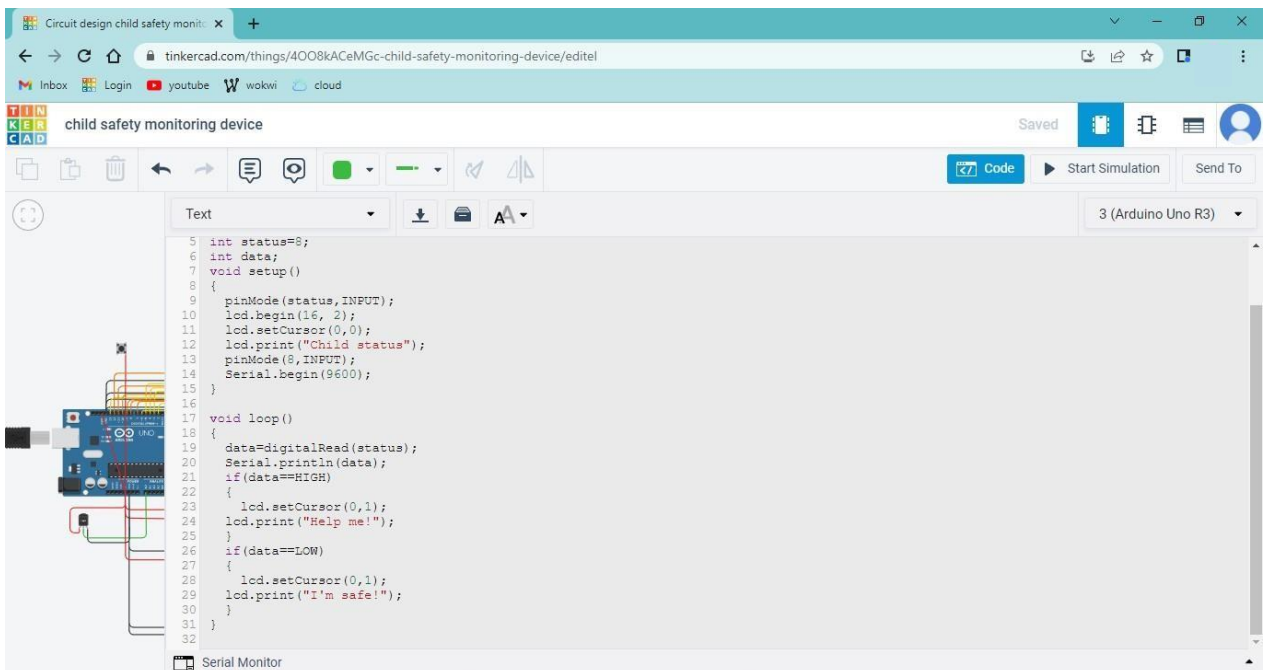
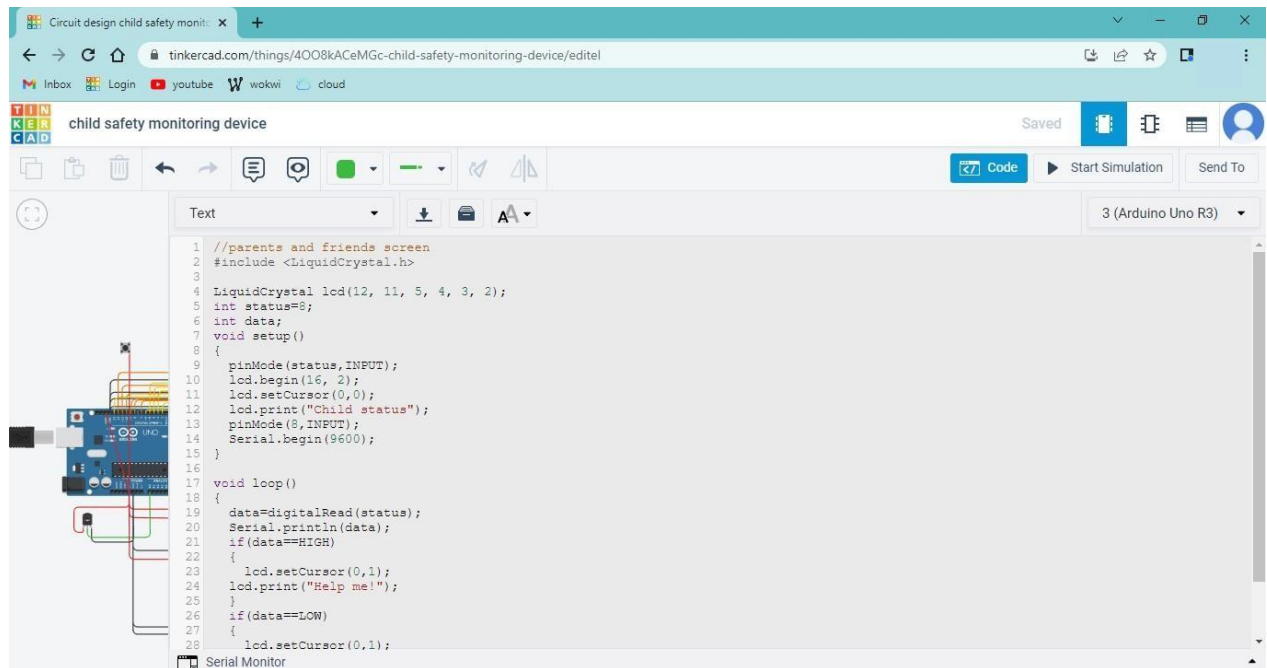




## Arudino-3

## Parents and friends Screen





**User Acceptance testing:**

Circuit design child safety monitor: x

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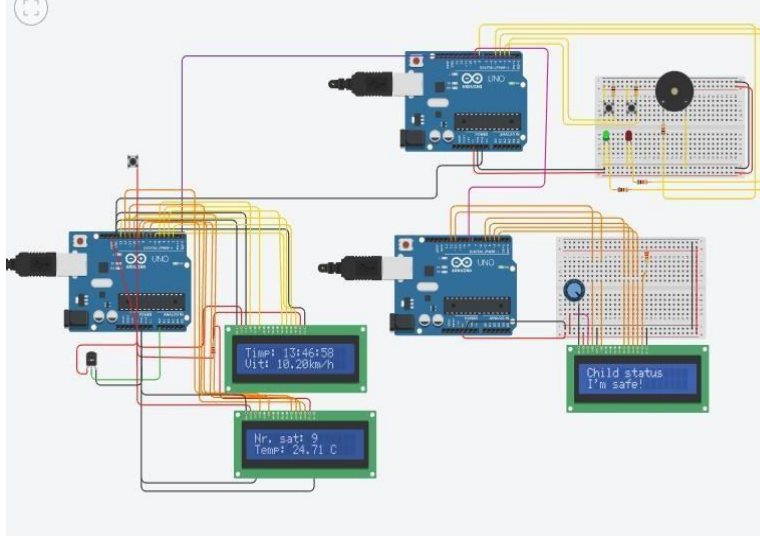
child safety monitoring device

Saved

Simulator time: 00:00:01.126

Code Stop Simulation Send To

1 (Arduino Uno R3)



```
1 //Child safety device
2 char text1[] = "$GPVTG,054.7,T,034.4,M,005.5,N,010.2,K";
3 char text2[] = "$GPGGA,134658.00,5106.9792,N,11402.3003,W,2,09,1.0,00.0,M,0.0,0000.0,A,0.0,000.0,H,0.0,M,0.0,0000.0,A";
4 int redbutton=3,greenbutton=2;
5 int redLED=5,greenLED=4;
6 int redstate=0,greenstate=0;
7 int buzzer=8;
8 int status;
9 int msg=9;
10 int greencount=0;
11 #define count 3
12 void setup()
13 {
14   pinMode(redbutton,INPUT);
15   pinMode(greenbutton,INPUT);
16   pinMode(redLED,OUTPUT);
17 }
```

Serial Monitor

\$GPVTG,054.7,T,034.4,M,005.5,N,010.2,K/\$GPGGA,134658.00,5106.9792,N,11402.3003,W,2,09,1.0,00.0,M,0.0,0000.0,A,0.0,000.0,H,0.0,M,0.0,0000.0,A

Send Clear