

ئون بىرىنچى دەرس  
ئارقىمۇ-ئارقا ئولۇنۇش  
**Serial Communication**

دوكتور ياسىن مەمەتجان

2023-04-02

مەڭگۈتەك تەربىيەلەش

مەركىزى



High School Competition!  
**1<sup>st</sup> Prize** , **\$4000**, Jan 28

**ACRES INNOVATION**

# **EMPLOYEE & TOOL SECURITY SYSTEM**

**ETSS**





**THOMPSON RIVERS UNIVERSITY**

Acres Design Competition

University Students Competition!

**1<sup>st</sup> Prize, \$4000**

April 1, 2023

خاسيه تليك ساندوق

Pandora's Box

<https://www.youtube.com/watch?v=VyTngCYXqMY>

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# Pandora's Box

— Plumtree N. Swanson C. Giles K. —  
Peaker A.

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# Design Description (Tasarım açıklaması)

Pandora's Box is our design team's visualization of **improved safety for workers.**

ئىدىيە ئىشچىلارنىڭ بىخەتەرلىكىنى ئۆستۈۈش

**Workplace injuries** come in many forms, and negatively impact everyone involved.

سەۋەب ئىش ئورنىدا يارلىنىش

The design attempts to cover the majority of common injuries sustained while on shift while being non-obtrusive.

قانداق كىشىگە دەخلى قىلمايدىغان يېڭى لايىھە تۈزەش

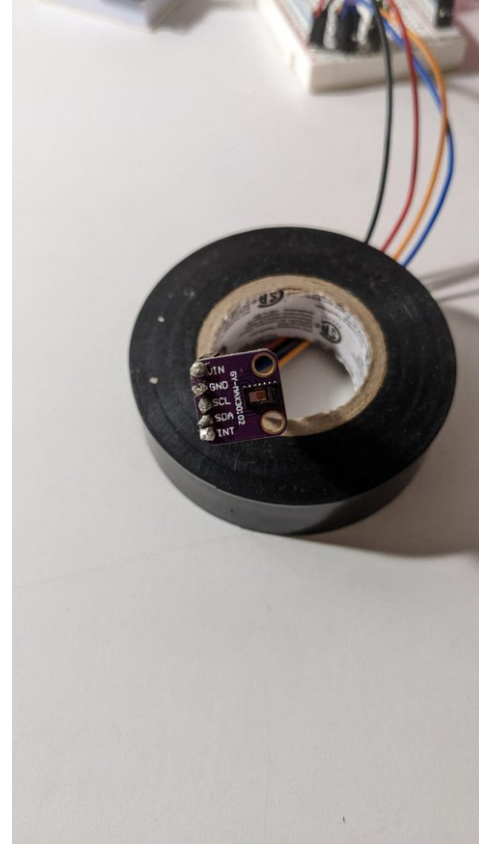
Fast response to injuries can help prevent further trauma.

پايدىسى يارىلانغانلارغا تېز ياردەم بېرىش، ئالدىنى ئېلىش

# Heart Rate Sensor

يۈرەك رېتىمى سېنزورى

- Detects relative heart rate
- Sounds alarm if too high or low
- Attaches to part of worker's body



## 3 Axis Accelerometer

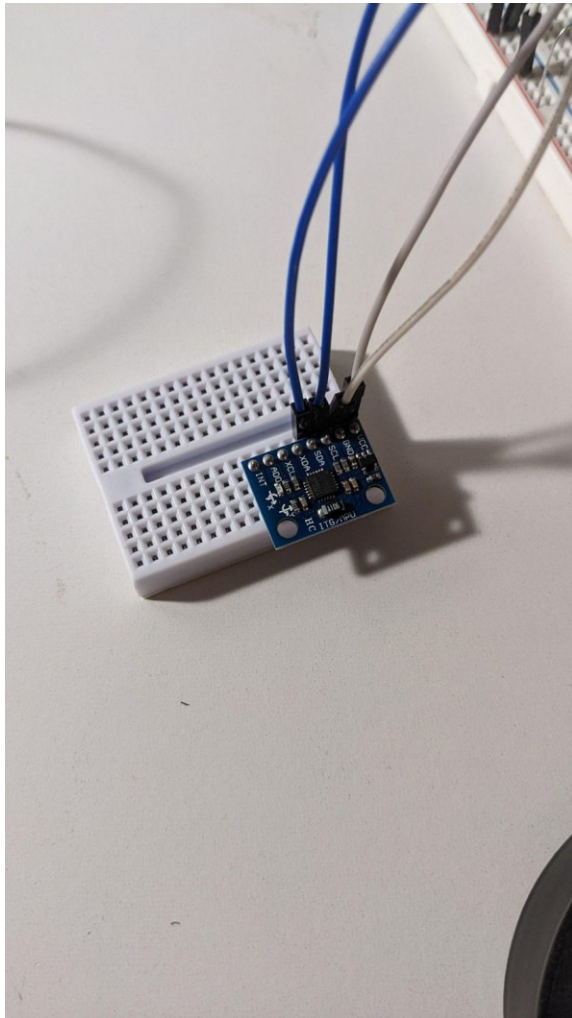
تیزلنش سپنزوری

- Detects large acceleration, often seen during falls from heights
- If trigger value is met, alarm will sound
- Can be cleared with “All Good” button

ئورۇن سېنزورى

## 3 Axis Gyroscope

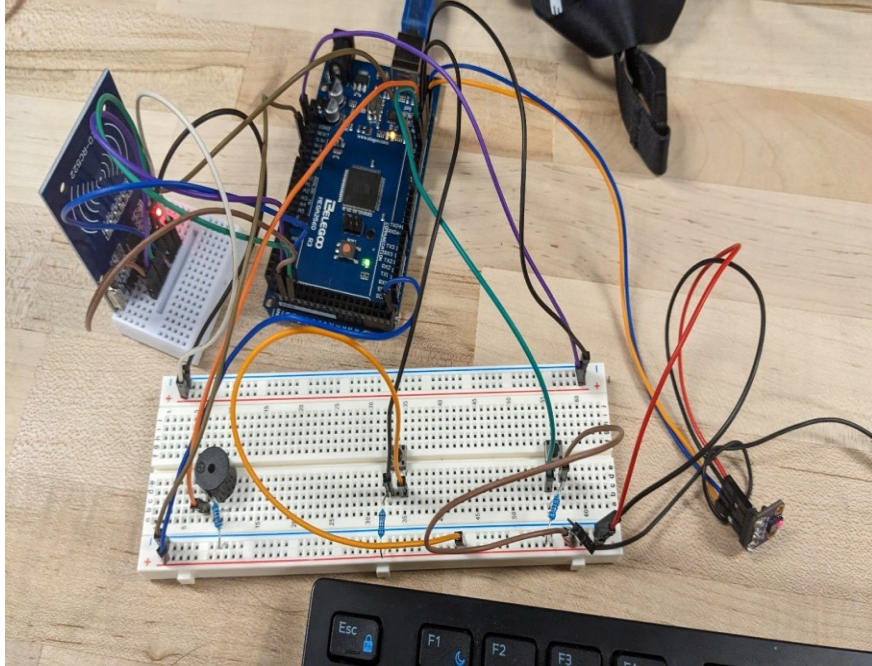
- Reads tilt of individual
- Can detect a prone position for a set time interval
- Will not raise alarm if user is sitting or standing



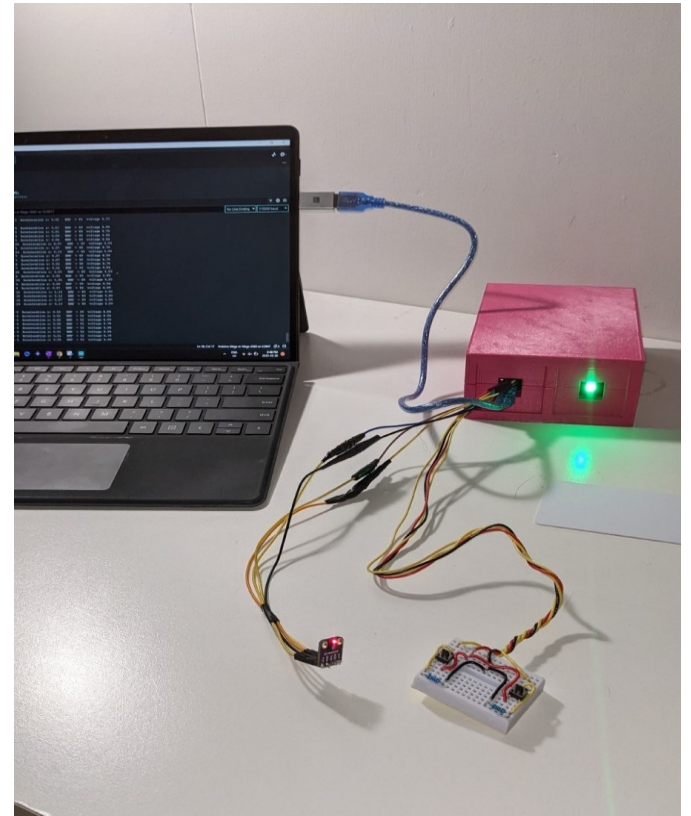


ئاخىرقى لايىھە ئۇقۇمنىڭ ئىسپاتى

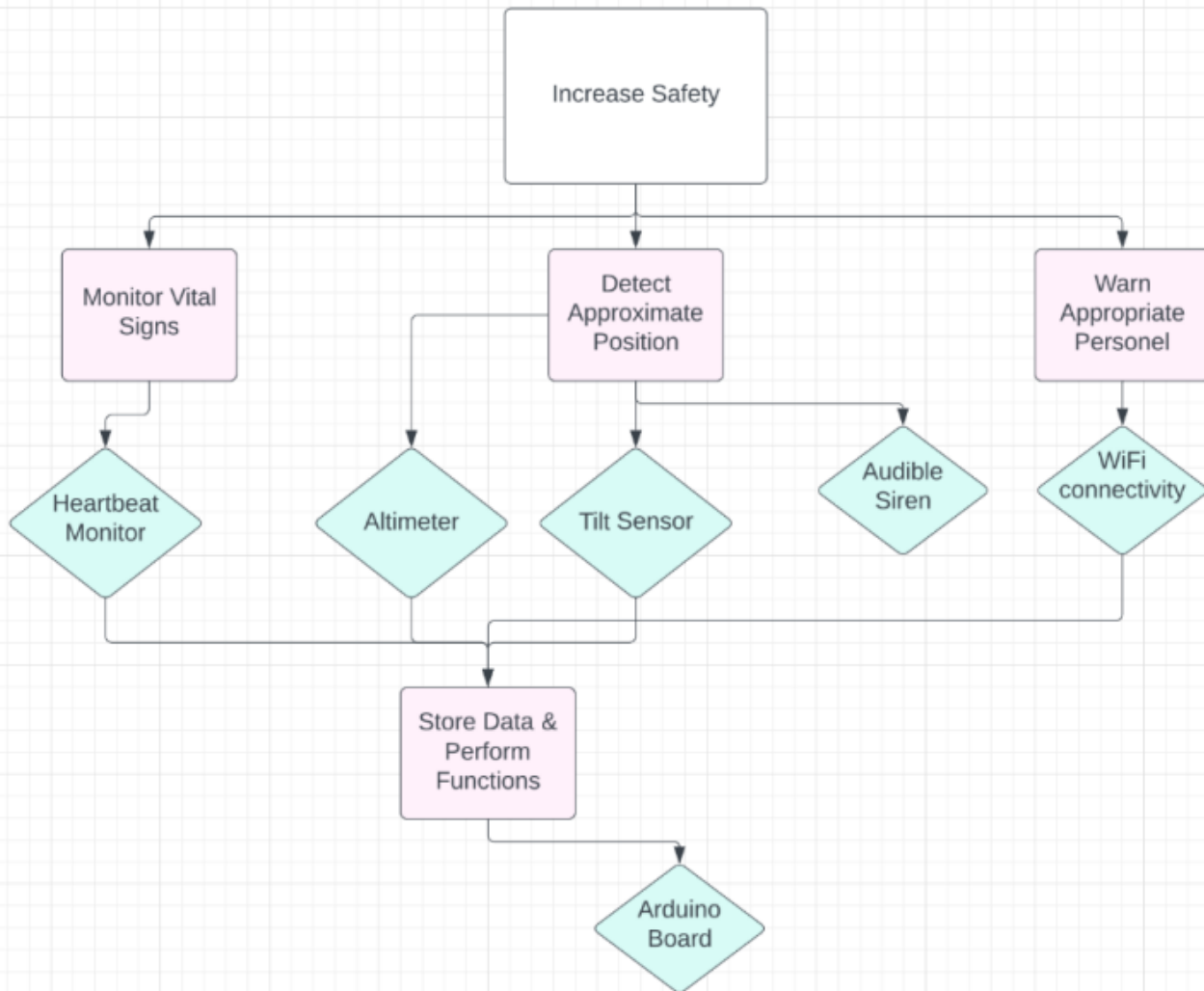
# Proof of Concept to Final Design



Prototype



Final Design



# ئىدىيەدىن پىروتوتىپقىچە

## Idea to Prototype / Innovation

What

ئىدىيە

ئىشچىلارنىڭ بىخەتەرلىكىنى ئۆستۈۈش

Reason

سەۋەب

ئىش ئورنىدا يارىلىنىش

How

قانداق

كشىگە دەخلى قىلمايدىغان يېڭى لايىھە تۈزەش

Benefit

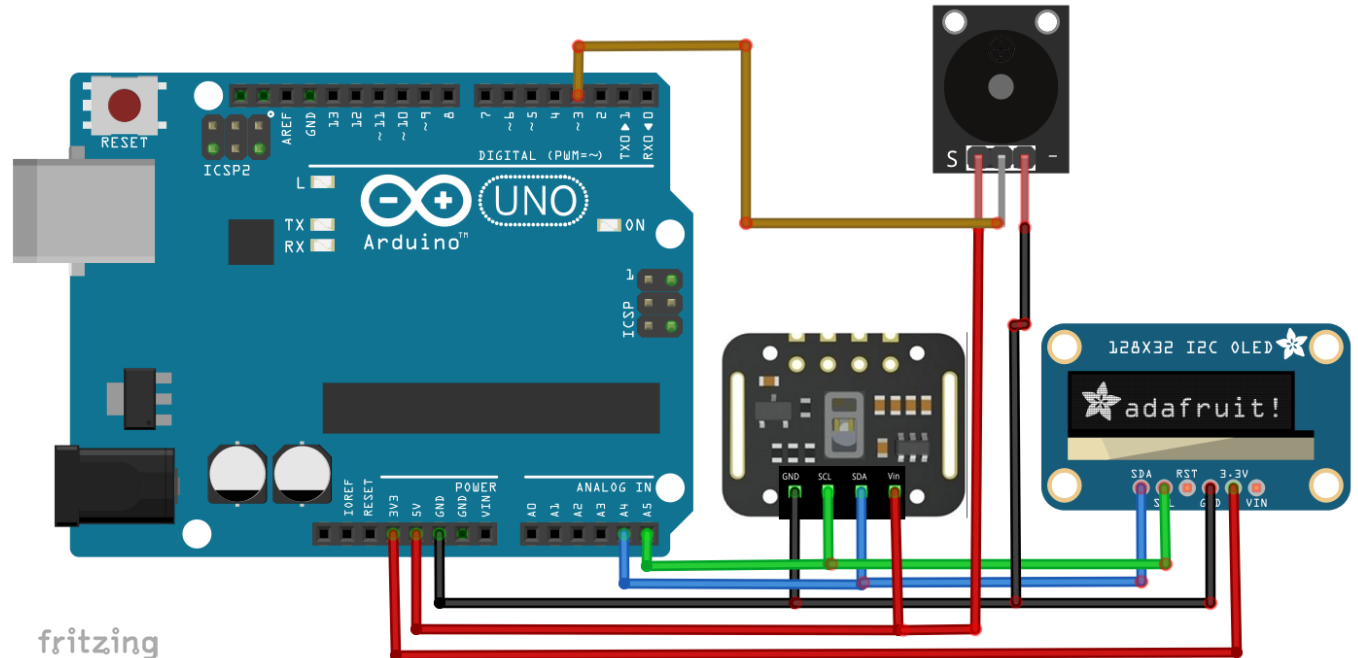
پايدىسى

يارىلانغانلارغا تېز ياردەم بېرىش، ئالدىنى ئېلىش

# Project Hub - Arduino

## Measure Heart Rate and SpO2 with MAX30102

- <https://projecthub.arduino.cc/SurtrTech/eb4f74c6-bb73-4148-9aaf-9cf1363e5c6d>

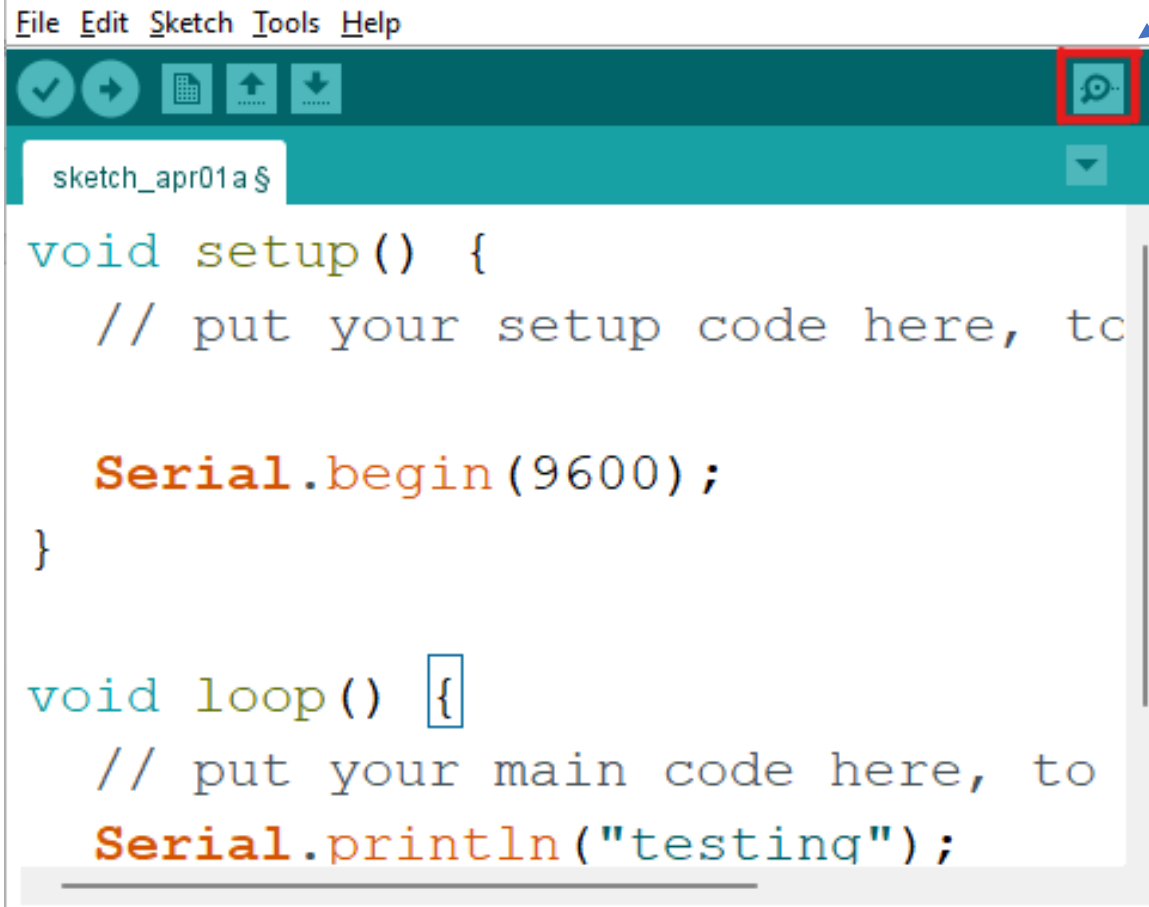


# ئارقىمۇ-ئارقا ئۇلۇنۇشنى تۇنۇشتۇرۇش

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- `Serial.begin(9600);`
- `Serial.println("testing");`
- `Serial.print(5);`

# ئارقىمۇ-ئارقا ئۆلۈشىنى نازارەت قىلىش



```
File Edit Sketch Tools Help
sketch_apr01a §
void setup() {
  // put your setup code here, to
  Serial.begin(9600);
}

void loop() {
  // put your main code here, to
  Serial.println("testing");
```

# پروگرامما ئاساسلىرىنى تونۇشتۇرۇش

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<http://www.mengutech.com/programming-basics/>

<https://wiki.nus.edu.sg/pages/viewpage.action?pageId=285575426>

تۈگىدى

سوئالڭز بولسا، تورىتىمىزدىكى  
ھەر بىر دەرسنىڭ سوئال  
!!سورايدىغان يىرىگە يېزىڭ

