

WEARABLE GAS SENSOR



<Mikail ŞEKER>

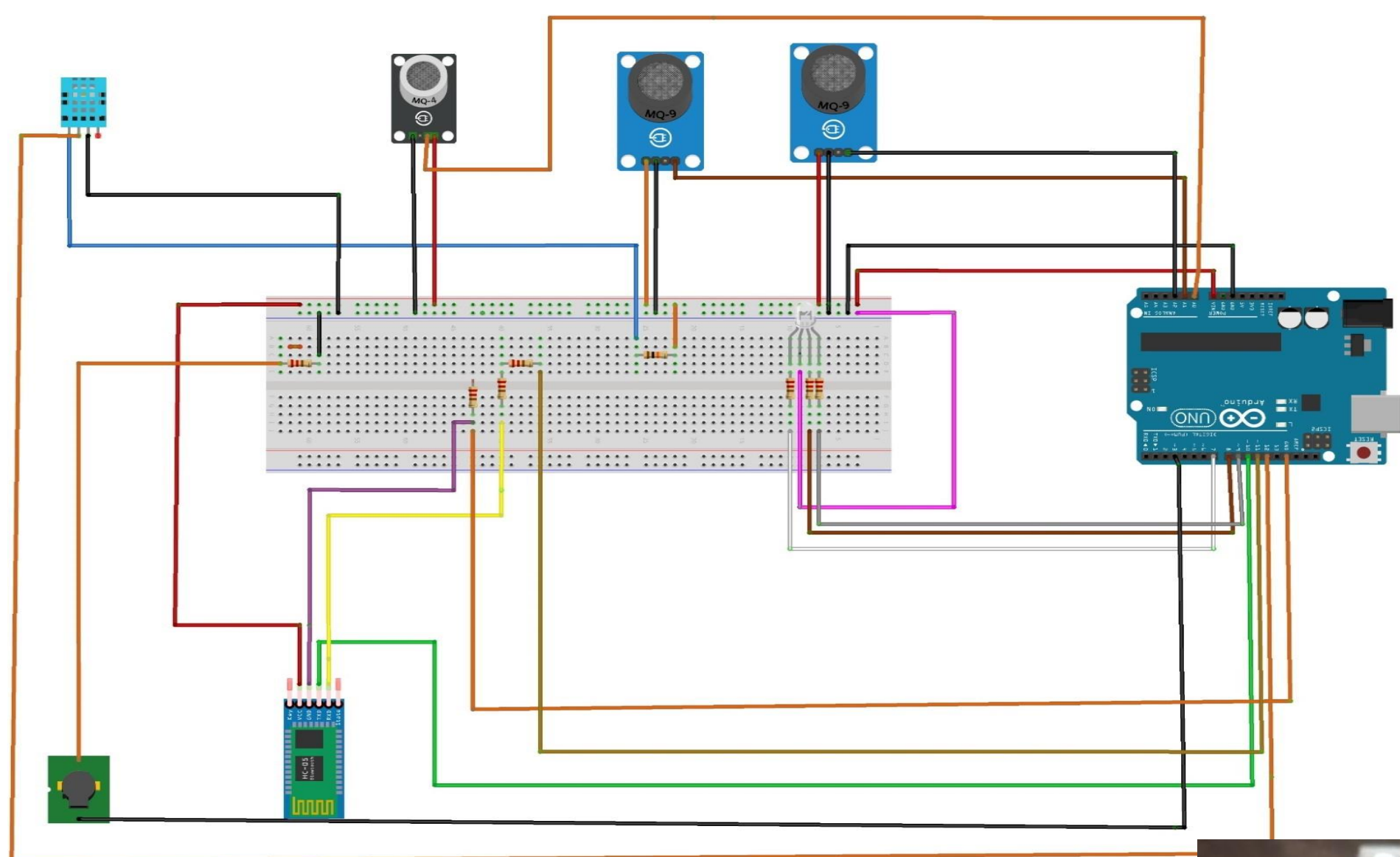
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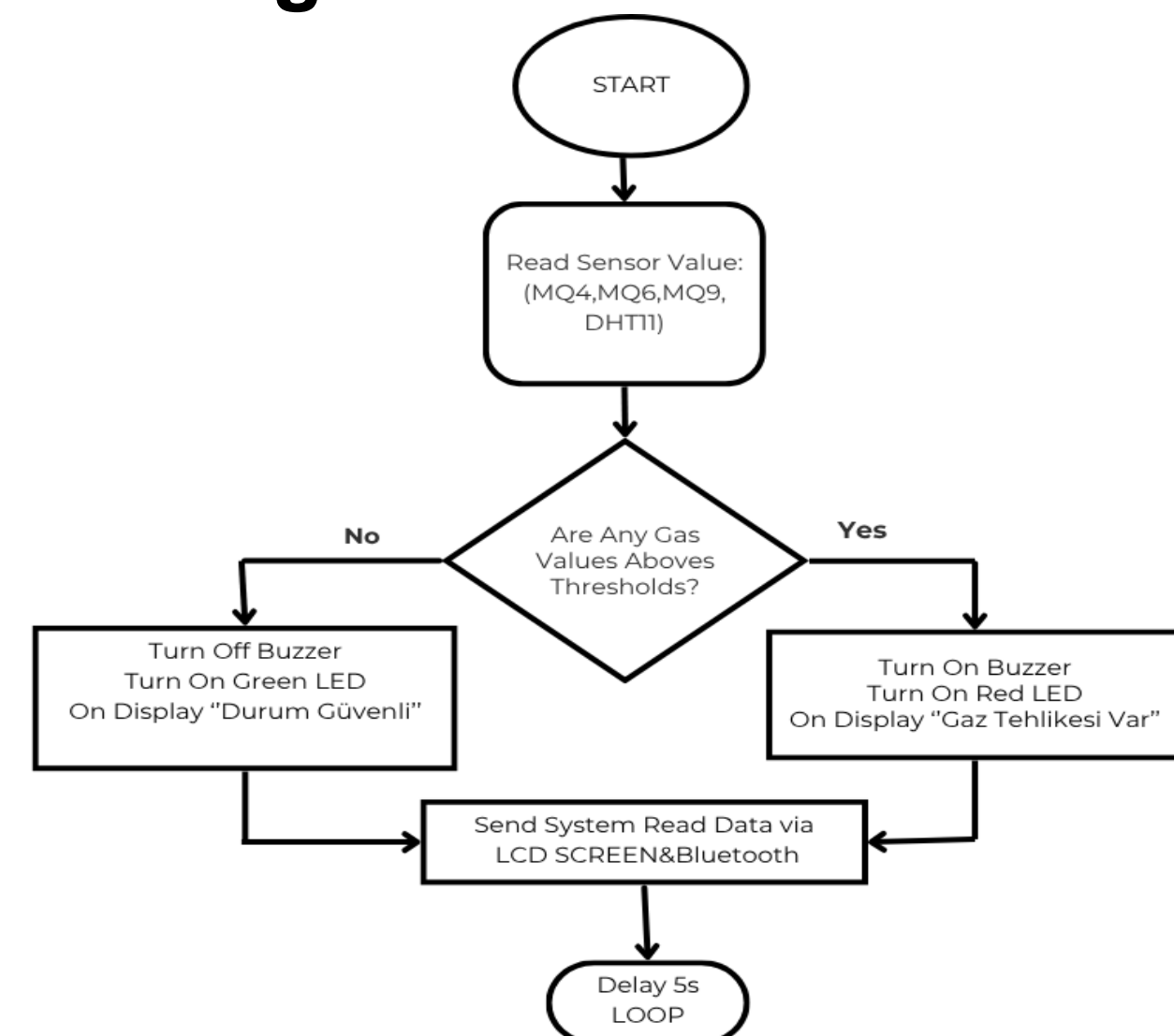
Abstract

My aim in this project is to design a gas sensor. The gas sensor will inform the user. If the gases exceed the threshold level, the system will warn the user both through the android application and the buzzer. I used the Arduino IDE software while designing this application.

Pictures of Project



Signal Flow Chart



Materials and Specifications

- Arduino UNO
- HC-05 Bluetooth-Serial Module
- Jumper Cables
- DHT11 Temperature and Humidity Module
- Buzzer
- Power Adaptor
- MQ-4, MQ-6 and MQ-9 Gas Sensors
- Android Phone
- LCD Screen



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11:40:58.164 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:40:59.693 Methane=10, Ethane=10, CO=30
11:40:59.693 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:01.178 Methane=10, Ethane=10, CO=30
11:41:01.205 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:02.755 Methane=10, Ethane=10, CO=31
11:41:02.755 TEMP=28.60°C, HUM=20.00%, STATUS=DANGER
11:41:04.207 Methane=12, Ethane=11, CO=31
11:41:04.211 TEMP=28.60°C, HUM=20.00%, STATUS=DANGER
11:41:05.729 Methane=15, Ethane=11, CO=28
11:41:05.729 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:07.227 Methane=10, Ethane=10, CO=30
11:41:07.234 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:08.805 Methane=10, Ethane=10, CO=29
11:41:08.805 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:10.265 Methane=10, Ethane=10, CO=29
11:41:10.267 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:11.812 Methane=10, Ethane=9, CO=29
11:41:11.812 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:13.289 Methane=10, Ethane=10, CO=28
11:41:13.292 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:14.849 Methane=10, Ethane=10, CO=28
11:41:14.849 TEMP=28.60°C, HUM=19.00%, STATUS=SAFE
11:41:16.295 Methane=10, Ethane=10, CO=28
11:41:16.295 TEMP=28.60°C, HUM=19.00%, STATUS=SAFE
11:41:17.761 Methane=10, Ethane=10, CO=28
11:41:17.811 TEMP=28.60°C, HUM=19.00%, STATUS=SAFE
11:41:19.330 Methane=10, Ethane=10, CO=28
11:41:19.330 TEMP=28.60°C, HUM=19.00%, STATUS=SAFE
11:41:20.847 Methane=10, Ethane=10, CO=28
11:41:20.854 TEMP=28.60°C, HUM=19.00%, STATUS=SAFE
11:41:22.304 Methane=10, Ethane=10, CO=28
11:41:22.304 TEMP=28.60°C, HUM=19.00%, STATUS=SAFE
11:41:23.894 Methane=10, Ethane=10, CO=28
11:41:23.894 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:25.383 Methane=10, Ethane=10, CO=28
11:41:25.383 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
11:41:26.879 Methane=10, Ethane=10, CO=28
11:41:26.885 TEMP=28.60°C, HUM=20.00%, STATUS=SAFE
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Conclusion

I successfully completed the project. Through the project, I learned how to communicate with the phone and print the information coming from the sensors on the screen. I also learned how to use Arduino IDE and Fritzing and how to program Arduino microcontrollers. In addition, I gained experience on how to communicate with Arduino. Thanks to this project, I gained experience in 3D drawing.

References:

- <https://www.robotistan.com>
- H. Li and S. Chen, "Design and Implementation of a Portable Gas Detection System,"
- International Journal of Embedded Systems, vol. 15, no. 2, pp. 150-162, 2020.2.P. Kumar and R. Singh, "Wearable Technology for Gas Monitoring in Industrial Environments
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