Wearable Technology for Disabled People

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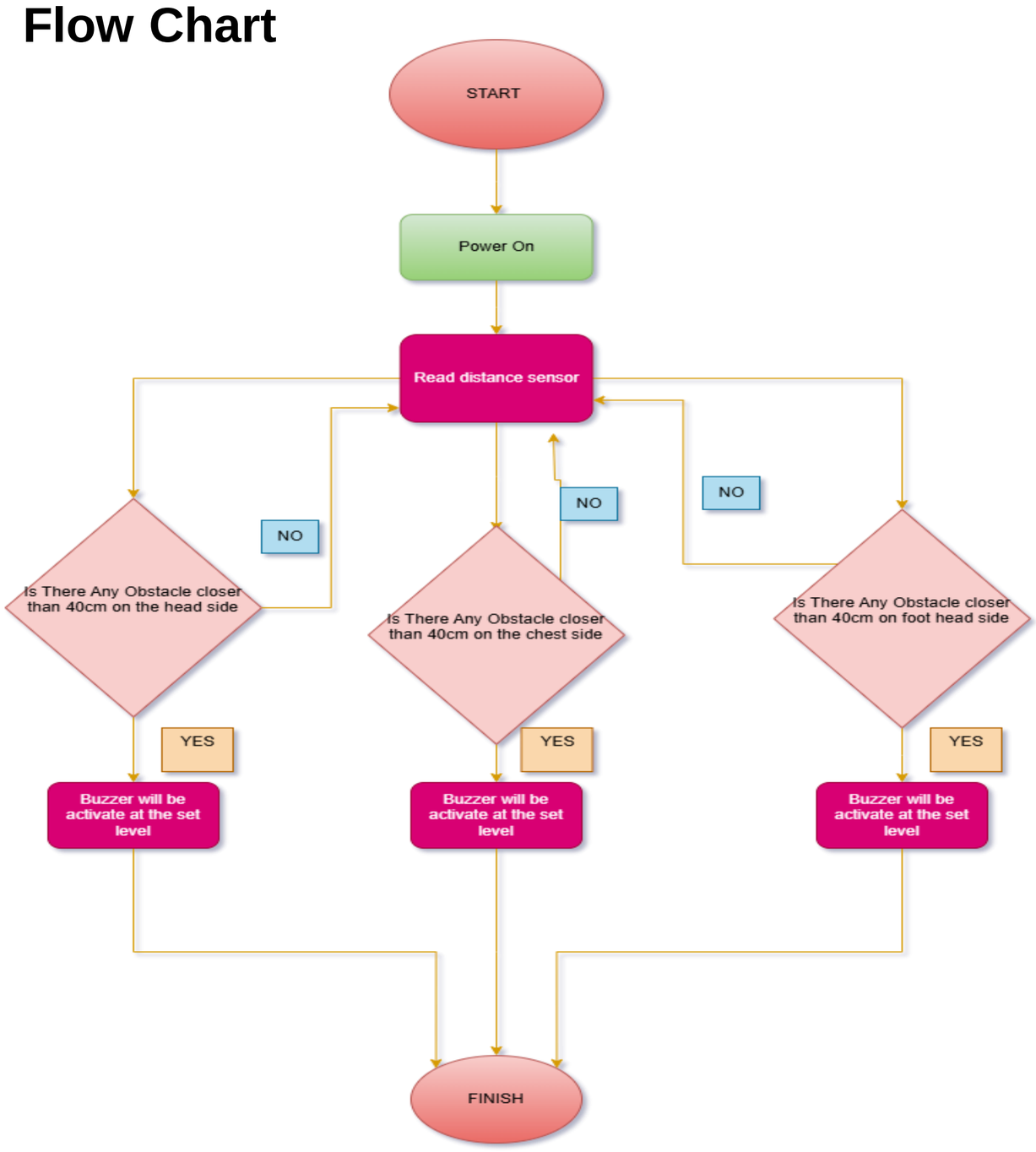
Abstract

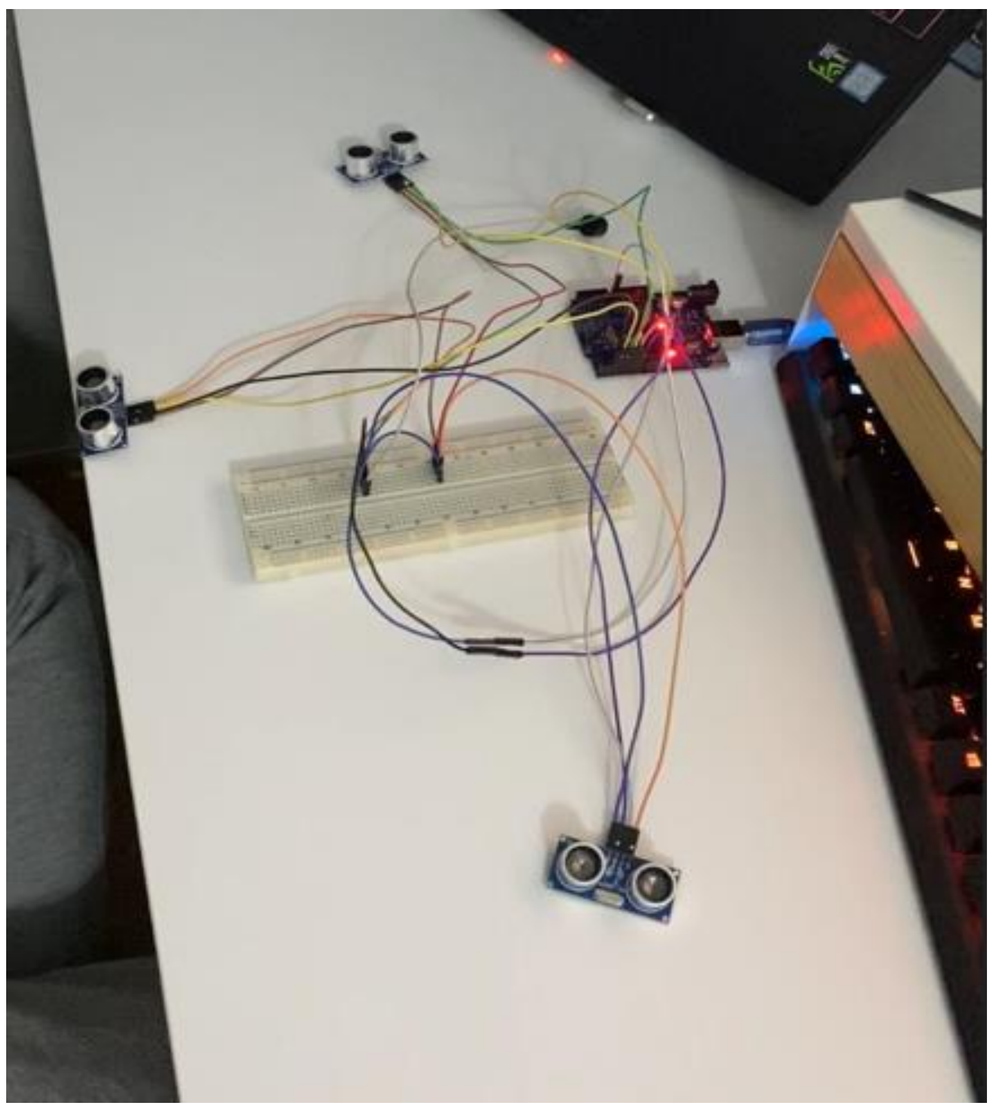
This project presents the design and implementation of a wearable obstacle detection system weared for visually impaired individuals. Utilizing ultrasonic distance sensors, an Arduino microcontroller, and a buzzer, the system is capable of detecting obstacles at different height level specifically the head, chest, and feet. The system processes real-time data and provides distinct audio feedback based on where the obstacle is detected. This allows the user to understand whether an object is approaching from above, straight ahead, or below. The ultimate goal of this project is to increase safety and independence in the daily lives of visually impaired users by offering a simple yet effective assistive technology solution.

Flow Chart



Main Components

Arduino UNO, Pertinax, Buzzer, Ultrasonic Distance Sensors, Battery



Conclusion

This project has shown that it is possible to build a simple and wearable system to help visually impaired people become more aware of their surroundings. The components used were affordable and easy to find. With Arduino, it was simple to connect the sensors and create the sound warning system. Of course, there are still some challenges like hearing the sound in noisy environments or limited battery life. But these problems can be fixed with small improvements. In the future, the accuracy, ergonomics, and energy efficiency of the system can be further improved through additional development.

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