



Intelligent glasses for the visually impaired

Abstract

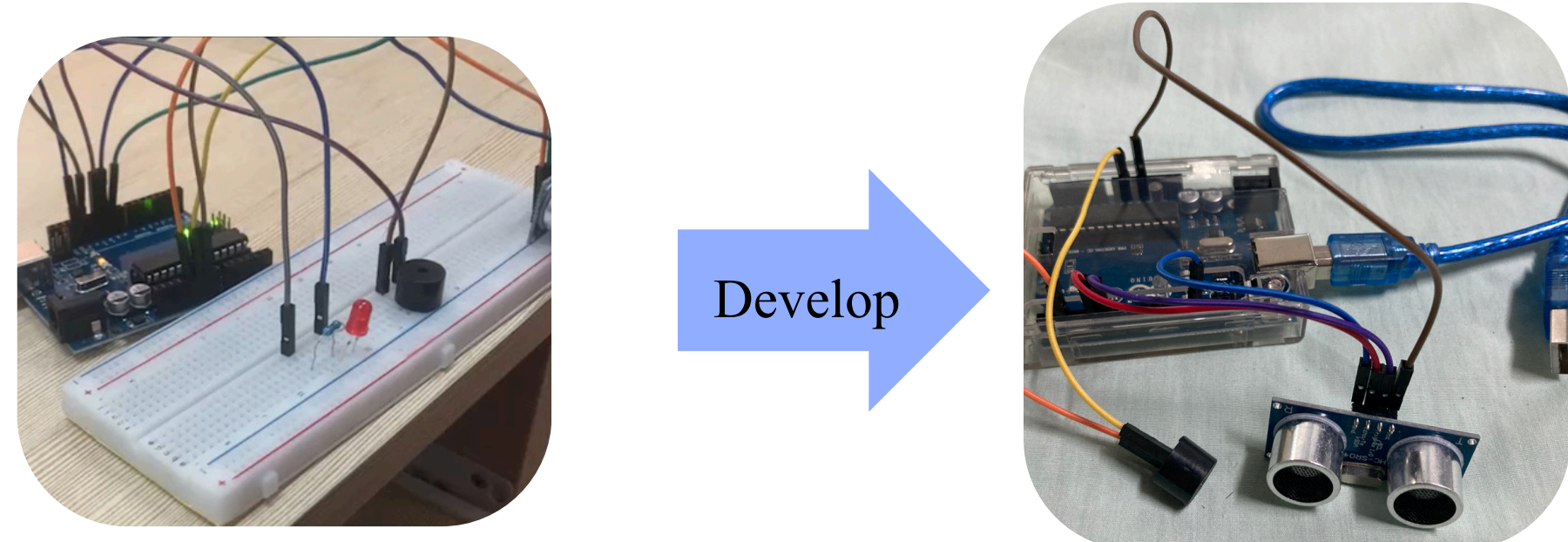
In a 2023 survey, it was found that there are as many as 184,543 visually impaired individuals in Thailand. This highlights that many lives are in need of assistance and that numerous hopes serve as inspiration for various inventions. A lasting image and curiosity led the inventors to ask this question: "Why do visually impaired people wear dark glasses?" Visually impaired individuals wear dark glasses to conceal scars around their eyes and to protect their eyes from harmful ultraviolet rays. Additionally, they often rely on familiarity and white canes to aid their daily lives. However, in certain situations, canes may not be as convenient. Thus, the team of inventors aims to enhance these dark glasses by transforming them into another assistive device for visually impaired individuals. By integrating technology and using various sensor systems, these smart glasses are designed to detect obstacles and assist the visually impaired more effectively.

Purpose

- To prevent and reduce accidents in the daily lives of visually impaired individuals.
- To encourage visually impaired individuals to stay motivated, remain hopeful, and strive for self-improvement.
- To create glasses that enable visually impaired individuals to detect obstacles.
- To test the efficiency of glasses designed for visually impaired individuals.

Procedures

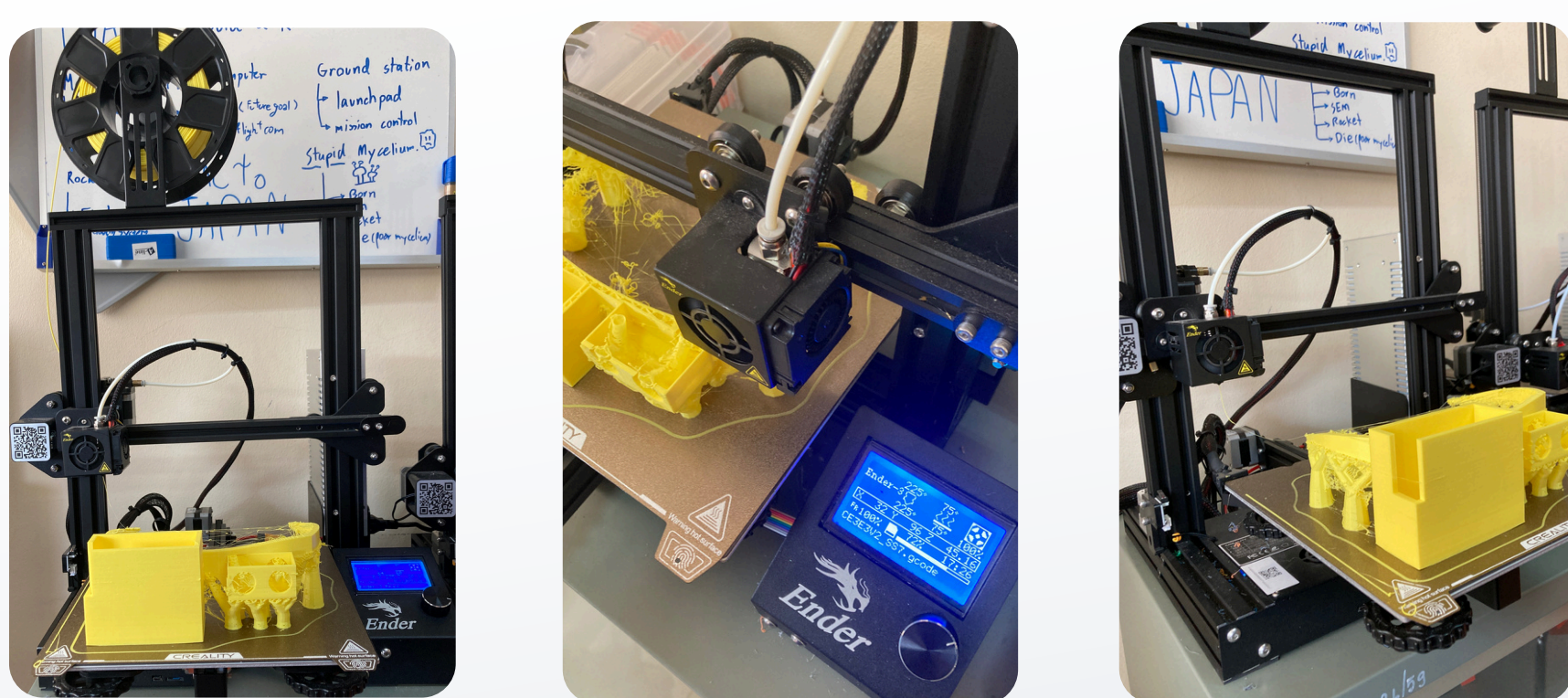
1. Connect the sound sensor, ultrasonic object detection sensor, jumper wires, buzzer speaker, and Arduino Uno R3 board together.



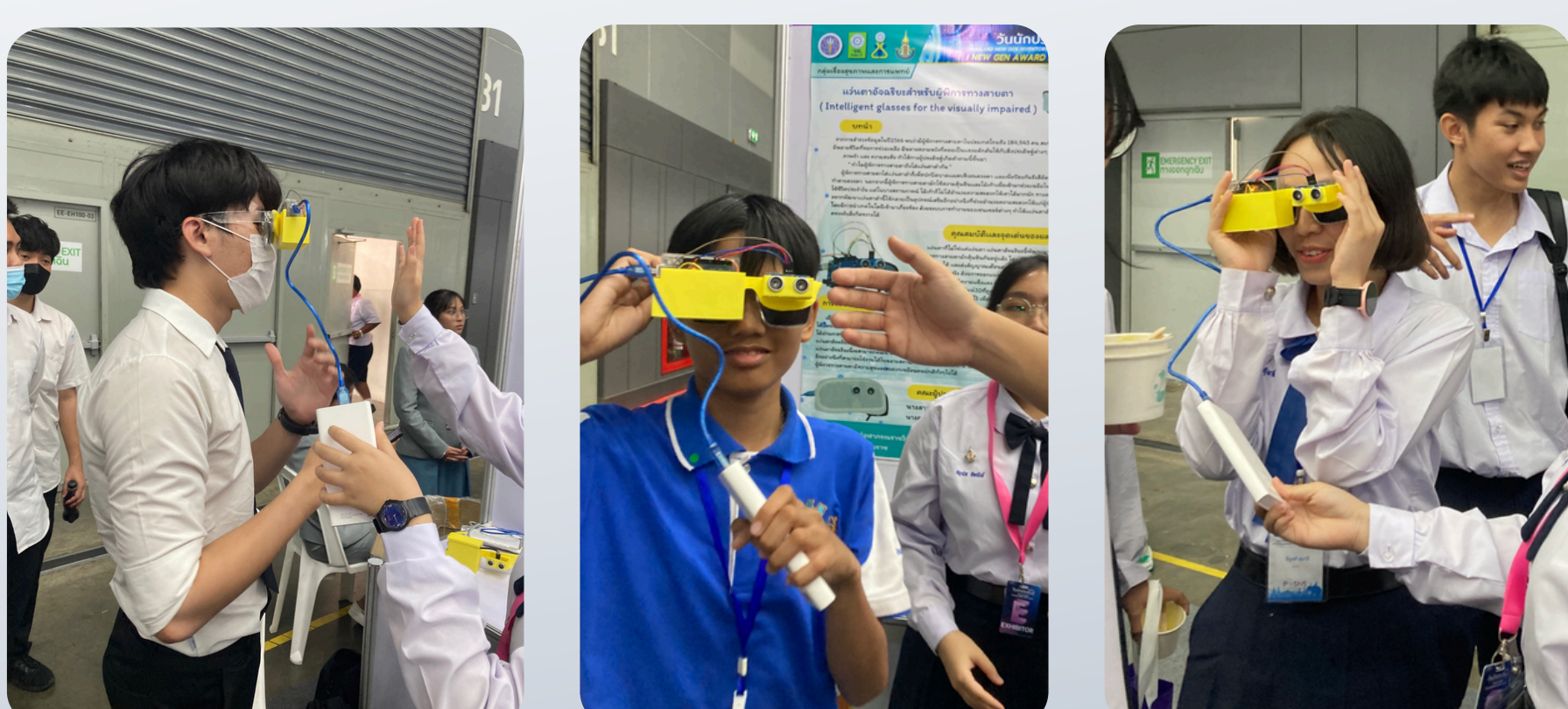
2. Input the code into the Arduino IDE program and upload it to the Arduino Uno R3 board.



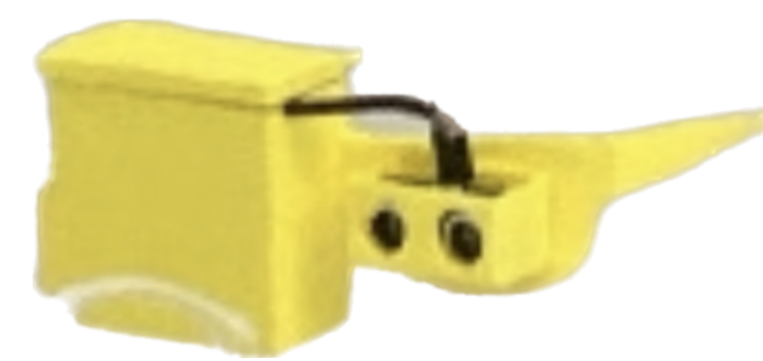
3. Design and 3D print a custom enclosure.



4. Test the functionality of obstacle detection.



Performance



Smart glasses performance test table for the visually impaired at various distances

จำนวนครั้งที่ การทดสอบ	ระยะห่างจากสิ่งกีดขวาง (เซนติเมตร)					
	10	20	30	40	50	60
1	/	/	/	/	/	X
2	/	/	/	/	/	X
3	/	/	/	/	/	X
4	/	/	/	/	/	X
5	/	/	/	/	/	X
6	/	/	/	/	/	X
7	/	/	/	/	/	X
8	/	/	/	/	/	X
9	/	/	/	/	/	X
10	/	/	/	/	/	X

Performance summary

From the experiment, it was concluded that the ability to detect obstacles at the eye level of these smart glasses for the visually impaired can best detect obstacles within 50 centimeters.

Minimal malfunction of the Ultrasonic sensor and can It works well in the most efficient way when compared to different phases.

To refer

Thanyaporn Matwanukul. (2003). The situation of the disabled 30 September 2023. Retrieved December 5, 2023, from <https://dep.go.th/th/law-academic/knowledge-base/disabled-person-situation>
 Thai traffic shop. (2003). 5 must-have devices at home for the visually impaired. Retrieved December 5, 2023, from <https://traffictai.com/shop/article-10153/>

