

Design and Construction of an Automatic Dispenser for the Visually Impaired Using Microcontroller Technology

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Introduction

- Fetching drinking water from a dispenser poses a risk for visually impaired individuals.
- This can be addressed by creating an assistive device that can automatically fill a glass of water, namely, the design and development of an automatic dispenser for the visually impaired based on a microcontroller.

Research objectives

- Assisting visually impaired individuals to fill water without the risk of injury from placing fingers in a glass of hot water.
- Developing the use of microcontrollers in human life to create technology that serves humanity.

Methods

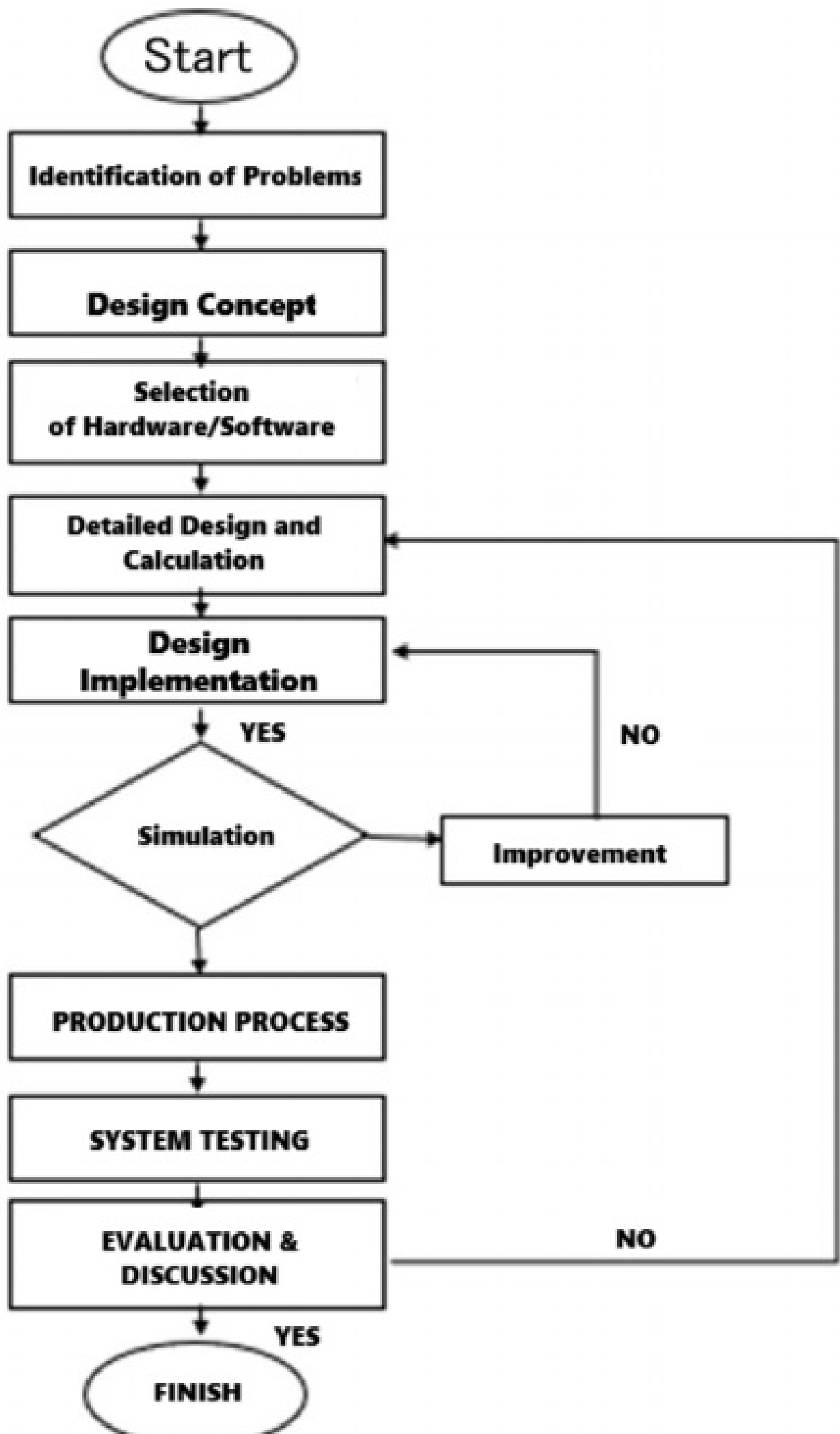


Figure 1. Design Flow

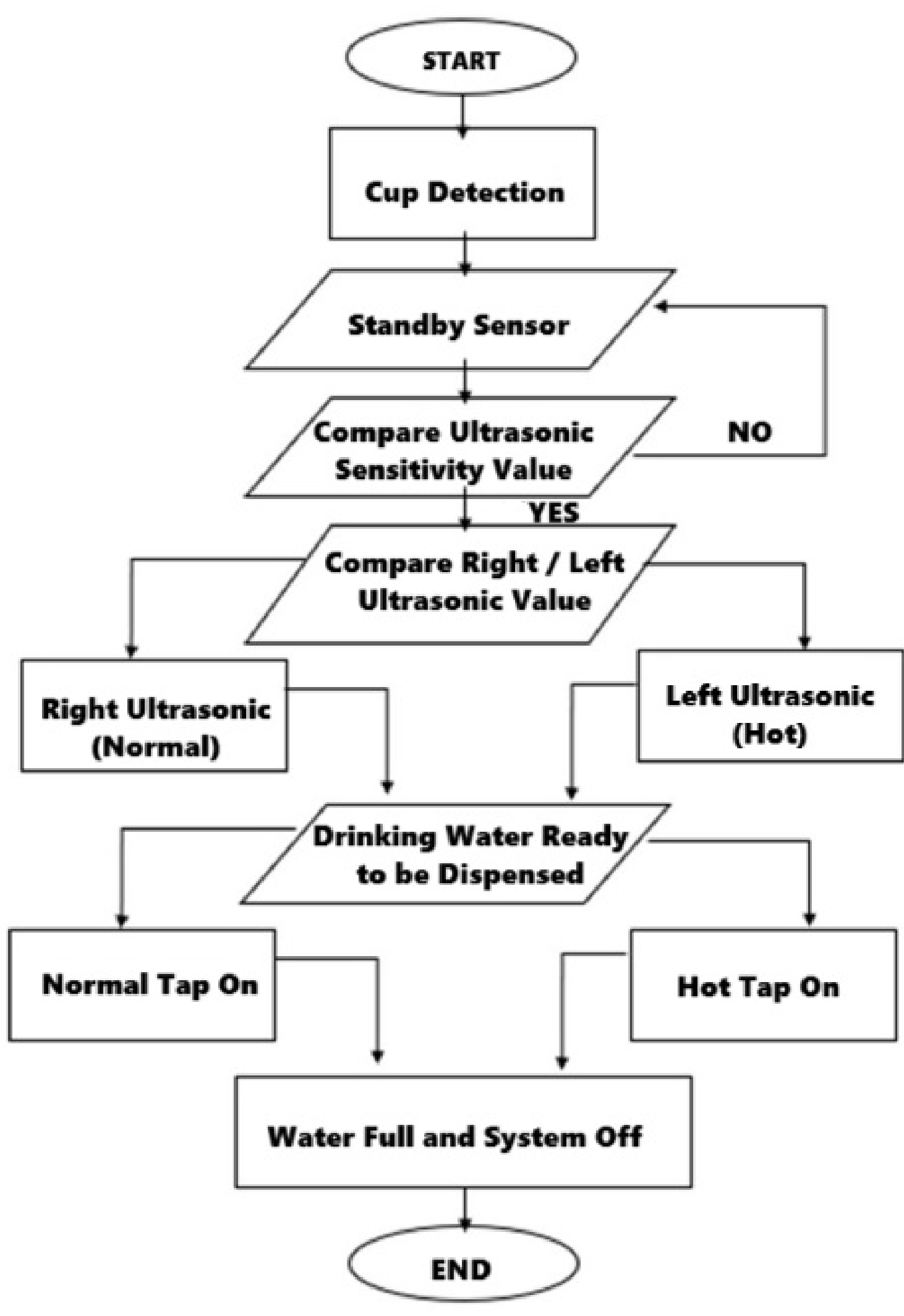


Figure 2. Flowchart of the Automatic Dispenser System

Results

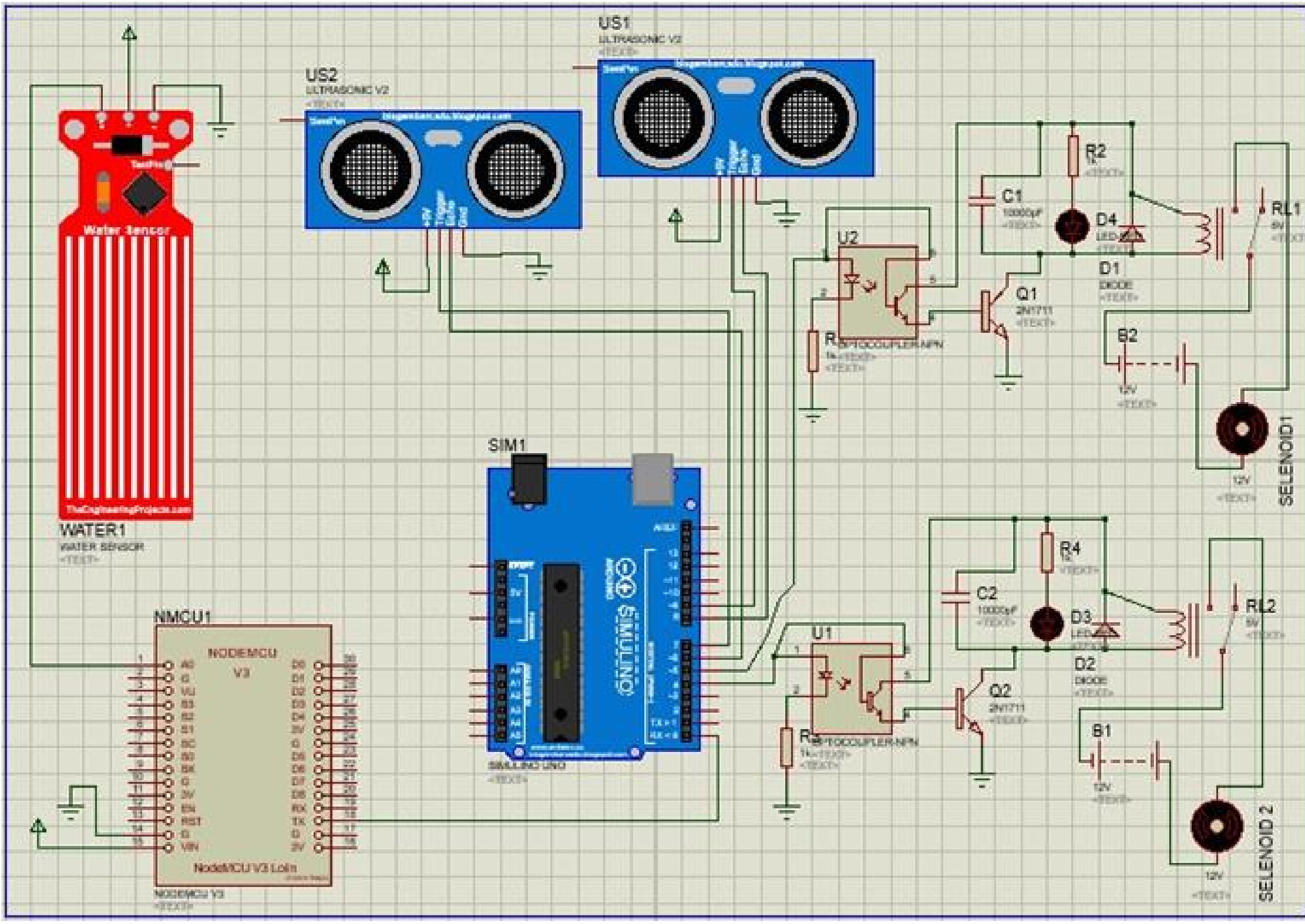


Figure 3. System Design



Figure 4. Hardware Design Result



Figure 5. Program NODEMCU ESP8266

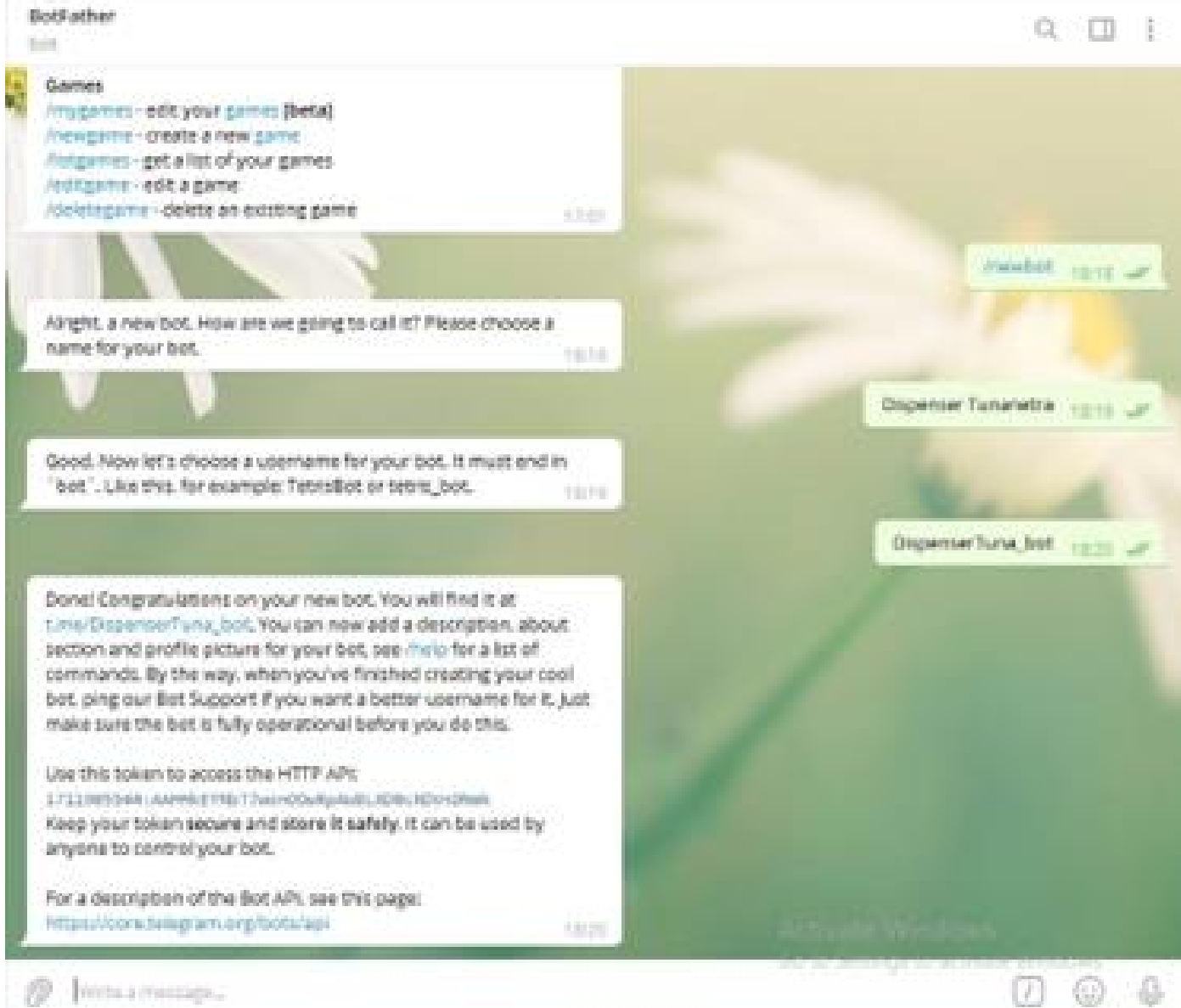


Figure 6. Telegram APP

Conclusions

- The design of an automatic dispenser for the visually impaired reduces the risk of hand injuries and provides assistance to them, with an Arduino Uno used as the control center.
- The NodeMCU ESP8266 functions as a microcontroller that manages the connection with the Telegram application via the internet, serving as a link, and as a sender of serial data to the receiver, which is the Arduino Uno.
- There is a limitation in that it cannot yet be operated remotely and can only communicate through Telegram Messenger.

Acknowledgement

Thanks to Panti Sosial Bina Netra (PSBN) Tan Miyat Bekasi for providing data for this research.

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