Legacy College of Compostela

Dagohoy Street, Poblacion Compostela Davao De Oro

“Arduino Blind Stick”

-Arduino project

Chapter 1

TEAM INFORMATION

Cleentson Dewey A. Lenterna (Software)

Email: cleentson@gmail.com

Contact no.09974318294

Krhisha Marie O. Cavan (Hardware Set-up)

Email: krhishamarieotagancavan@gmail.com

Contact no. 09155437715

Chapter 2

"Arduino Blind Stick"

OVERVIEW

An **Arduino Blind** Stick is a smart assistive device designed to help visually impaired or blind individuals navigate their surroundings more safely. It integrates various sensors and technologies such as ultrasonic sensors, vibration motors, and sometimes GPS, all controlled by an Arduino microcontroller, to provide real-time feedback about obstacles or environmental cues.

Objective:

Obstacle Detection:

- **To detect obstacles in the user's path using sensors like ultrasonic or infrared sensors.**
- **To alert the user when they are approaching an obstacle, helping them avoid collisions.**

Provide Real-Time Feedback:

- **To deliver immediate and understandable feedback through tactile (vibration motors) and auditory (buzzer or beeps) signals, which vary in intensity based on the proximity of obstacles.**

Improve Navigation and Safety:

- **To guide the user safely around obstacles and hazards (e.g., walls, curbs, poles, or moving objects) while walking.**
- **To reduce the risk of accidents by providing early warnings of potential dangers.**

Description:

After seeing the blind people in the street pleasing people to help them walk on street. I felt sad for that, and then T started working on this project.

Key Feature:

Ultrasonic Sensors:

- The primary component for detecting obstacles. Ultrasonic sensors like the HC-SR04 emit sound waves and measure the time it takes for the sound to bounce back from objects in the user's path.
- These sensors can detect obstacles in a range of distances (e.g., 10 cm to several meters), and when an object is detected, the system can alert the user.

Vibration Motors:

- When the ultrasonic sensors detect an obstacle, the system can activate vibration motors to provide haptic feedback. The intensity of the vibration can increase as the user gets closer to an object, allowing them to sense how far away an obstacle is.

Buzzer/Sound Output:

- In addition to vibrations, the system can use a buzzer to provide auditory signals, helping users identify proximity to obstacles. For example, a short beep can indicate a far distance, while a continuous sound could signal that the user is too close to an obstacle.

Arduino Microcontroller:

- The Arduino acts as the brain of the device, processing input from the sensors and determining the appropriate output (vibration, sound, or both). It's flexible, allowing for modifications or upgrades to the device as needed.

Power Supply:

- The device typically runs on a rechargeable battery, which powers both the Arduino and the sensors. Some designs may use power-efficient components to extend battery life.