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University Of Education



BS-IT 7th Semester (Evening)
Session (2019-2023)

Final Year Project Proposal

Members

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Submitted To

Ms. Faiza Tariq

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Project Title

VISIOM WAND

Project Overview Statement

Project Title: VISIOM WAND			
Lead: Muhammad Sufyan (BSF1900133)			
Project Members			
Name	Registration	Email Address	Signature
Muhammad Sufyan	BSF1900133	msshtech@gmail.com	
Project Goal: Make a smart stick for blinds that will help them to detect static hurdles, detect water, and create an emergency communication system with the caretakers of blind. The device will help blinds to navigate in the environment safely.			
Project Objectives: <ul style="list-style-type: none">• The visually impaired person can detect static hurdles and water.• Built up an emergency communication system.• Rechargeable device• Easy to carry and easy to use.• Lightweight with a reasonable price.			
Project Success Criteria <ul style="list-style-type: none">• Goals and Objectives are clearly defined.• Light Weight and Cost Effective• Flexible			
Assumptions, Risks, and Obstacles: <ul style="list-style-type: none">• Investment			
Type of project: <ul style="list-style-type: none">• Embedded System, IoT based			
Target End users: <ul style="list-style-type: none">• Visually impaired persons			
Development Technology: <ul style="list-style-type: none">• Embedded C			
Platform: <ul style="list-style-type: none">• Physical Device			
Suggested Project Supervisor: Ms. Faiza Tariq			
Approved By: Ms. Faiza Tariq			
Date: Thu, 22 Dec 2022			

Project Goals & Objectives

Goal:

Make a smart stick for blinds that will help them to detect static hurdles, detect water, and create an emergency communication system with the caretakers of blind. The device will help blinds to navigate in the environment safely.

Objectives:

- The visually impaired person can detect static hurdles and water.
- Built up an emergency communication system.
- Rechargeable device
- Easy to carry and easy to use.
- Lightweight with a reasonable price.

High-level system components

- ESP32
- Ultrasonic Sensor with a scroller
- Water detection sensor
- Accelerometer and GPS Detector
- Push buttons to send email
- Buzzer
- Rechargeable battery
- Backboard
- On-off button.
- Wires for connections
- Technology (Embedded C) for integration of hardware and software

Application Architecture

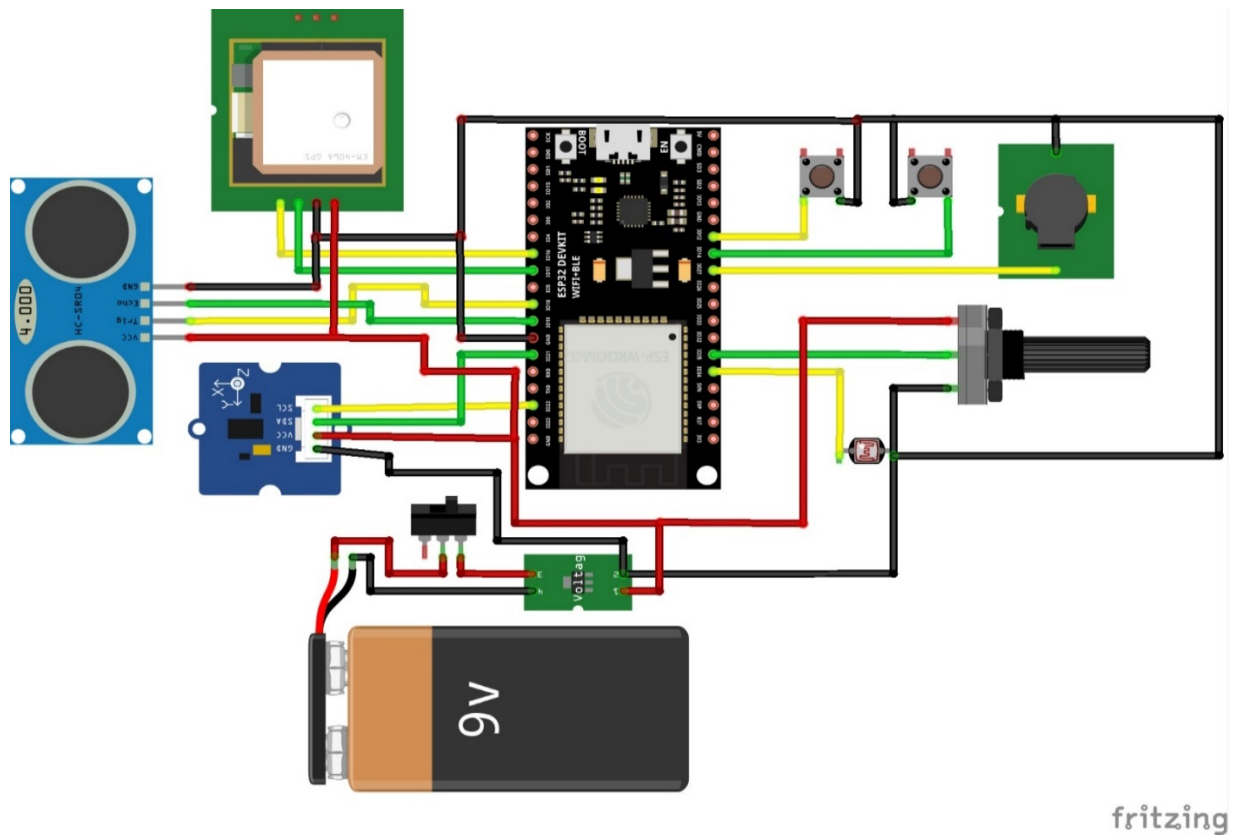


Figure 1: Architecture diagram

Gantt chart:

ID	Activites	Duration	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23
1	Mechanical Work	10 Weeks	22th Dec - 28th Feb					
2	Program Machine	7 Weeks				1st Mar - 15th Apr		
3	Implementation	4 Weeks					16th Apr - 14th May	
4	Testing							

Figure 2: Gantt chart

Hardware and Software Specification:

It's a standalone physical device.

Optional Functional Units:

Flexible and can be attached with

- Stick

Excluded:

- It's a device currently used for static hurdles in the future we'll work for moving objects.
- GPS will navigate outdoor; we are supposed to work for indoor in future.
- Alert message if the battery is running out.
- In the future, we will design a more suitable casing for components.

Tools and technologies used with reasoning:

- ESP32 microcontroller is a main part by which whole components will integrate.
- Ultrasonic Sensors are used to detect hurdles.
- Water detection sensor is used for detecting water like puddles.
- Accelerometer to detect device state and GPS for detection of current(outdoor) location.
- A buzzer will be used to inform user about hurdles.
- A rechargeable battery would be attached for reuse.
- Arduino IDE is used for programming the device.
- C++, C is used as a programming language.