POLITEKNIK MALAYSIA
KEMBARANG PERAI

ELECTRICAL ENGINEERING DEPARTMENT

JABATAN KEJURUTERAAN ELEKTRIK
POLITEKNIK SEBERANG PERAI

PROJECT 1 (DEE40082)

TITLE : SMART ATTENDANCE SYSTEM USING VOICE SENSOR FOR DISABLED STUDENTS

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RUBRICS FOR INVESTIGATION REPORT

Marks by	Item	Elements	Marks
SUPERVISOR	1	Identify problem or opportunity (4 marks)	
		· Problem statement	/2
		· Problem related to current issue	/2
	2	Determine project OBJECTIVE and SCOPE (4 marks)	
		· Project Objective	/2
		· Project Scope	/2
	3	Carry out fact finding (2 marks)	/2
		Total marks for CLO1:	**/10**
PANEL	4	Analyse project usability, cost benefit and schedule data (6 marks)	
		· Cost estimation of project	/2
		· Project duration	/2
		· Usability of project	/2
	5	Evaluate feasibility (4 marks)	
		· Technical resources	/2
		· Financial resources	/2
	6	Provide a conclusion with judgement and recommendation based on the results (5 marks)	
		· Judgement	/2
		· Recommendation	/2
		· Benefits to the organization	/1
		Total marks for CLO2:	**/15**

Panel comment: _____

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Checked by:

(Panel Name) Date:

Investigation Report

TITLE: SMART ATTENDANCE SYSTEM USING VOICE SENSOR FOR DISABLE STUDENTS

1.0 Brief Introduction of the project

The attendance management system is an essential component of any educational institution, ensuring that student attendance is accurately tracked and recorded. However, traditional methods of attendance management, such as paper-based systems and manual record-keeping, are time-consuming and error-prone. To overcome these challenges, an intelligent attendance system can be developed using voice sensors.

The intelligent attendance system is designed to automate the attendance recording process, making it more efficient and accurate. By using voice sensors, the system can detect and record student attendance in real time, eliminating the need for manual recording. The system can also be integrated with other technologies such as machine learning and artificial intelligence to improve its functionality.

1.1 Identify Problem or Opportunity

1.1.1 Problem Statement

Traditional methods of attendance management such as paper-based systems and manual recording are time consuming and prone to error. For students with disabilities, especially speech disabilities, traditional attendance recording can be challenging. Therefore, there is a need for a smart attendance system that uses speech sensors to improve the efficiency and accuracy of attendance management, especially for students with disabilities.

1.1.2 Problem related to current issue

Usually, teachers will find it difficult to take attendance for students with disabilities because they are hyperactive in class. They are also not normal students who can understand like other normal students. To solve the situation, we can install a voice sensor at the main door of the classroom to detect the voice of the students and easily can take attendance automatically. This will be make teachers feel easier to take attendance without feeling difficult.

1.2 Determine project objective and scope

1.2.1 Project Objectives

- To design a circuit based on the project that we need to do.
- To develop the project, we need to start doing the project by using the components that we have.
- To implement the project, we need to set up a meeting and start to implement the project that has been done

1.2.2 Project Scope

- This project scope is when detected a voice of students it will be saved in the system and take a bit time to capture presence information.
- The system must be able to uniquely identify each user based on voice and motion sensors.
- The user may first need to log into the system by providing voice and motion data for identification.
- The system may require a user interface to allow users to interact with the system, such as a mobile application or web portal.

1.3 Literature Review

Attendance management system records and maintains student's attendance data using smart devices. The system collects attendance records in the system and manages, stores, and processes the data. It generates daily attendance reports that help the faculty to track student's presence with high accuracy and efficiency.

1.4 Analysis project usability, cost benefit and schedule data

1.4.1 Cost estimation of project

This project involves the cost of purchasing components and materials throughout its implementation components involving cost are hardware Arduino, Voice sensor, Microphones, Routers/Switches, Power supplies and Cables. The overall cost for this project is RM 178.80.

1.4.2 Project Duration

Weeks / Work	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Prepare materials														
Design model														
Developing the model														
Testing														
Trial														
Result														
Paper work														
Presentation														
Submit														

1.4.3 Usability of project

1.4.3.1. Accessibility: the system should be designed to be accessible to students with disabilities. For example, it should provide options for visually or hearing-impaired users. The system should also be compatible with assistive technologies such as screen readers.

1.4.3.2. Ease of use: the system should be easy to use, with a user-friendly interface that is easy to navigate. The interface should be designed to minimize the time and effort required for users to interact with the system

1.4.3.3. Voice Recognition Accuracy: The accuracy of the voice recognition system is critical to the reliability of attendance detection. The system should be designed to recognize a range of voices and dialects to ensure that all users can use the system effectively.

1.4.3.4. User training: the system should be designed to be easily learned by users. It should have training materials and resources to help students with disabilities learn how to use the system effectively.

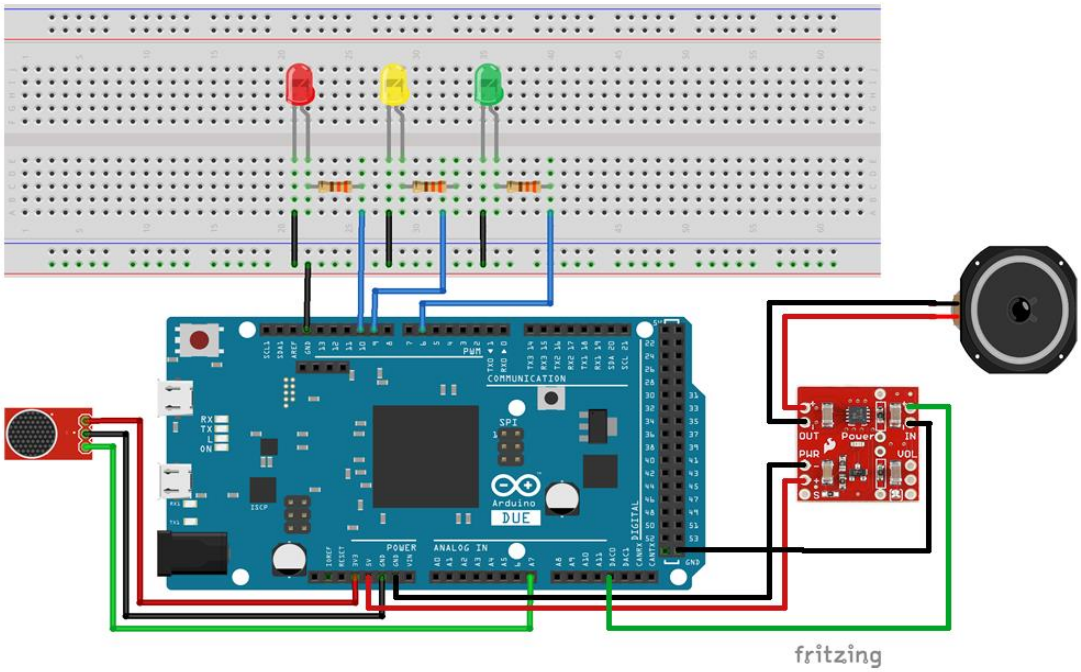
1.4.3.5. Error prevention and handling: the system should be designed to minimize errors and make error messages clear and helpful to users. The system should also allow users to correct errors if they occur.

1.4.3.6. User feedback: the system should provide feedback to users, such as confirmation that their attendance was recorded correctly. The system should also allow users to provide feedback on the usability and functionality of the system.

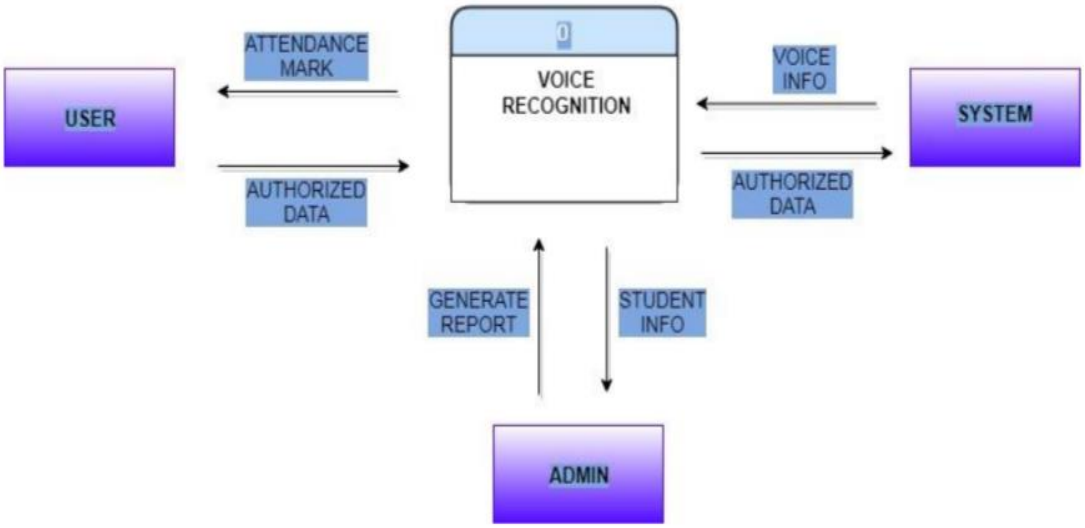
1.5 Evaluate feasibility

1.5.1 Technical resources

Roughly the schematic diagram will be like this:



1.5.2 Block Diagram



1.5.2 Financial resources

Items	Quantity	Cost
Arduino Board R3 (UNO)	1	RM 12.80
Voice sensor	1	RM 90.00
LED bulb	3	RM 6.00
Resistor	10	RM 10.00
Cables	10	RM 22.00
LCD screen	1	RM 38.00
	Total	RM 178.80

1.6 Provide a conclusion and Recommendation based on the result

1.6.1 Conclusion

In summary, an intelligent attendance system that uses a voice sensor is an innovative and practical solution for automating the attendance process in educational institutions. The system offers several advantages, including automation, time savings, accuracy, cost efficiency, scalability, and innovation. The circuit diagram for the project typically includes a microcontroller, voice sensor, display, memory, power supply, and other necessary components. The circuit can be modified according to the specific requirements of the system

1.6.2 Recommendation

I recommend this project because it can be very useful to the teachers and helpful to engineer students. They also can learn something important from doing this project.

1.6.3 Benefits to others

From doing this project, we can see that taking a attendances for a disable students is not easy as well. This project will change the method by using a new method and can increase the economy of our country if this project successfully well known in every country.