FINGERPRINT EXAMINATION ATTENDANCE SYSTEM (FEATS)

INTRODUCTION

A fingerprint examination attendance system is a sophisticated technological solution that allows organizations to manage attendance records of their employees or students with ease and accuracy. Instead of using traditional pen and paper-based attendance registers or cards, this project presents a prototype of an attendance system called Fingerprint Examination Attendance System (FEATS). This project aims to provide a modern, efficient, and secure way of tracking attendance records for students. Traditional attendance tracking methods, such as paper registers or cards, are often prone to errors, fraudulent activities, and time-consuming data entry processes. The fingerprint attendance system project addresses these challenges by leveraging biometric technology to capture and verify the unique fingerprints of individuals. The fingerprint attendance system project addresses these issues by using advanced fingerprint recognition algorithms sensors and microcontroller with use of IoT application to ensure accurate identification of individuals, thus reducing the risk of fraud or error. The system also provides real-time attendance tracking, enabling examination units to monitor and manage attendance records more effectively.

PROJECT BACKGROUND

This project implements IoT application such as ‘google script’ and main compartment consist of ESP32 Microcontroller and AS608 Fingerprint sensor. The microcontroller uses Arduino IDE 1.8.16 software that allows it to register and stores students’ data. Meanwhile, the function of ‘google script’ enables data from Arduino to be sync with google sheet which than display a set of database consists of a student’s information. Besides that, the AS608 Fingerprint sensor acts as a scanner to detect students fingerprint ridge and sets each unique fingerprint to its own data. This system offers a highly reliable and secure way to manage attendance records, as it eliminates the possibility of fraud or errors that can occur with traditional attendance tracking methods. Additionally, the system can generate automated reports and information, providing organizations with valuable insights into attendance trends and patterns. Overall, a fingerprint examination attendance system is a highly efficient, accurate, and reliable solution that offers numerous benefits for organizations seeking to improve their attendance tracking processes.

PROBLEM STATEMENT

1. Politeknik Sultan Idris Shah (PSIS) examination unit continue to use the manual, pen-and-paper method of recording attendance for examination.
2. The process of manually recording students' attendance is a challenging task for Politeknik Sultan Idris Shah (PSIS) examination unit because human can make mistake and lots of time wasted
3. The old fingerprint system uses LCD display which prevents from showing lots of data about the student.

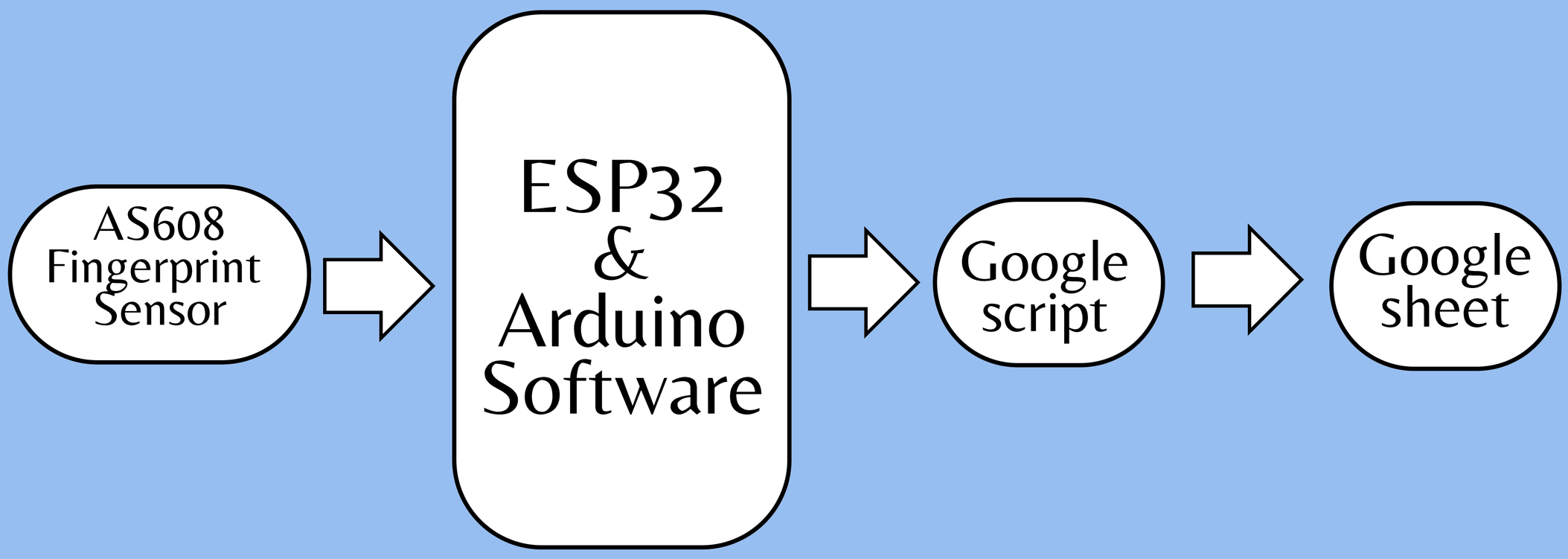
OBJECTIVES

1. To design a fingerprint examination attendance system.
2. To create a database to record data that is related to the student.
3. To develop an IoT system that can display lots of information about students in 'google sheet'.

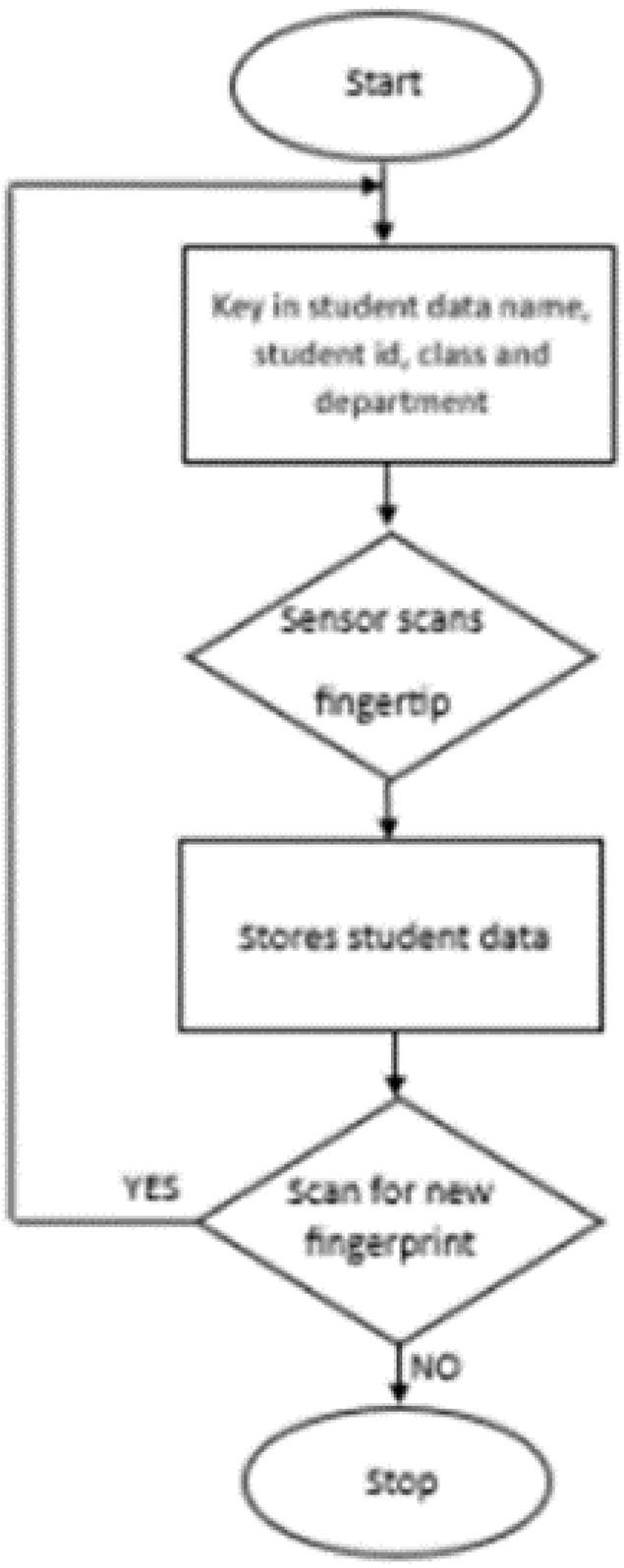
PROJECT SCOPE

This project focuses on developing a student fingerprint attendance system for the PSIS Examination unit. This system is focused to be used during the examination season which takes place at the Dewan Sri Lang. Most examination are taken at the main hall of PSIS therefore places like that are suitable to implement and focus on. The hardware of this system uses an AS608 Fingerprint Sensor which will act as an input that detects the student's fingerprint and ESP32 Microcontroller as the main compartment that will be used for the process from input to transfer instruction and data. Besides that, the use of software in this system are "google script", "Google sheet" and "Arduino IDE". Google script will act as a server to connect the microcontroller to google sheet. The google sheet will be used to display a set of databases about the information of students. Arduino IDE is commonly used for coding and uploading it into the microcontroller.

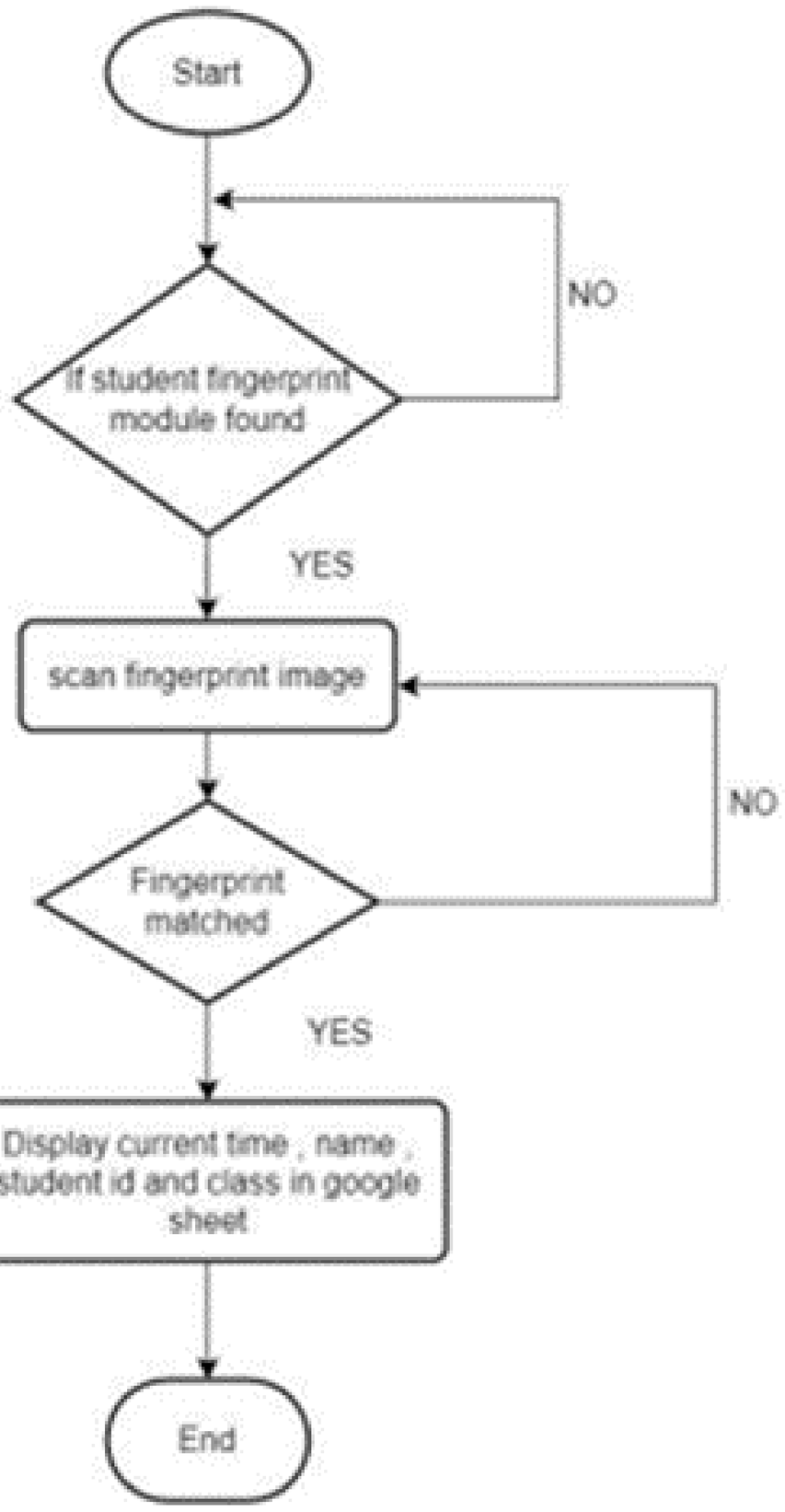
BLOCK DIAGRAM



REGISTARATION FLOWCHART



OPERATIONAL FLOWCHART



PROJECT COST

Estimated Cost

List of components and materials:

No.	Component and materials	The unit price	Quantity	Total
1	ESP32 Microcontroller	RM 23.00	1	RM 23.00
2	AS608 Fingerprint sensor	RM 50.00	1	RM 50.00
3	Male to Female jumper wire	RM 8.79	40	RM 8.79
4	Male to Male jumper wire	RM8.70	40	RM8.70
5	Data cable	RM2.00	1	RM 2.00
6	Breadboard	RM3.75	1	RM3.75
			Overall total	**RM96.24**