



R. C. Technical Institute

Opp. Gujarat High Court, Sola, Ahmedabad-380061

R. C. Technical Institute

Sola, Ahmadabad - 60

CERTIFICATE

This is to certify that this work of **PROJECT-II** Subject & **3360707** Subject Code of **6th** Sem with title: **FINGERPRINT ATTENDANCE SYSTEM** represents the bonfire work of following students for the fulfilment of the Certificate of Diploma in Computer Engineering at R. C. Technical Institute Sola, Ahmadabad - 60, Gujarat, during the academic year 2016-17 and the work is completed and found satisfactory.

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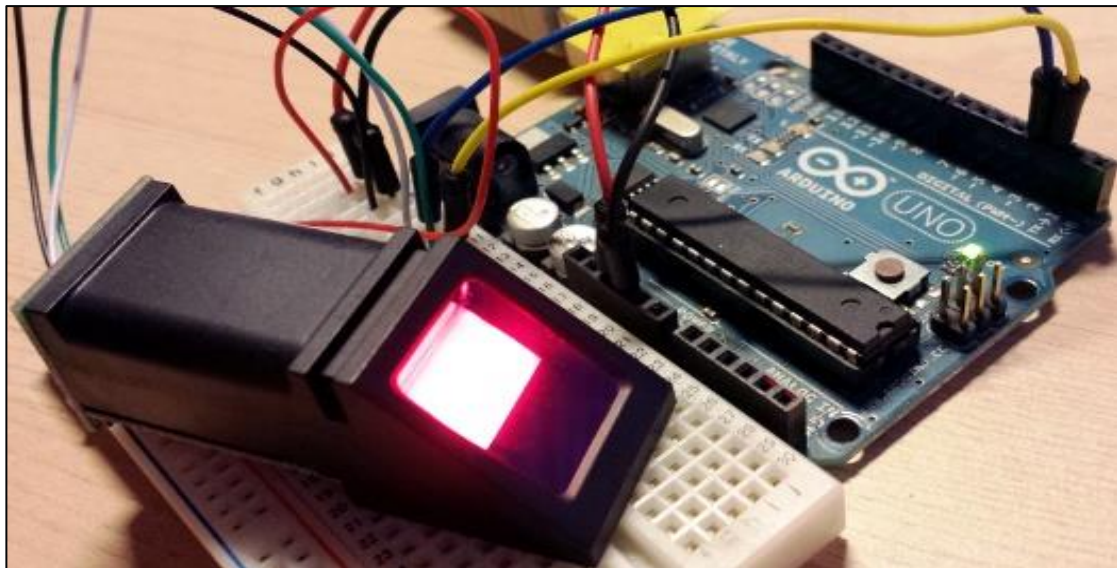
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FINGERPRINT ATTENDANCE SYSTEM



STUDENT NAME

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Guided By
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1.0 INTRODUCTION

1.1PROJECT PROFILE

Project Title :	Fingerprint attendance system
Project Aim :	To provide automatic attendance
Project Objective :	To motive of this fingerprint attendance system provides a satisfaction attendance report of students for faculties
Project Duration :	Approximately 8 months
Internal Guide :	J. B. Baria sir
Mentored By :	V. A. Vyas sir
Front End :	Python , VB.net
Back End :	ARDUINO , MS Access
Technology :	I.O.T
Developed By :	Narekar Rushabh B.(146400307549) Panchal Meet B.(146400307554) Patel Mrunal R.(146400307548)

1.1 PURPOSE

The purpose this documents is to present a detailed description of the Fingerprint attendance system. It will explain the purpose and features of the software, the interfaces of the software, what the software will do, the constraints under which it must operates and how the software will react to external stimuli. This document is intended for both the end users and the developers of the software.

1.2 SCOPE

This document covers the requirements for the Fingerprint attendance system. This software will provide a graphical environment in which the users of the system will be able to perform various operations that are associated with storing, marinating, updating and retrieving Student information. The purpose of this is to guide developers in selecting a design that will be able to accommodate the full-scale application. The system will capture information about student's personal details lectures and the courses. Storing updating and retrieving in a fast and accurate way.

1.3 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

The Fingerprint attendance system has to handle records for many number of students and maintenance was difficult. Though it has used an information system, it was totally manual. Hence there is a need to upgrade the system with a computer based information system.

The most common use of this system is to manage students attendance in school & collages. Traditionally faculties take attendance manually and manages records on paper. This process is very time consuming, non- user friendly and tedious .To resolve mentioned issues, we are developing a ***fingerprint attendance system*** to help faculty members, in this project, many of the processes are automated which perform activities like progress report of the student. This will result in more free time for faculty which can be spend improving student skill development & co-curricular activities.

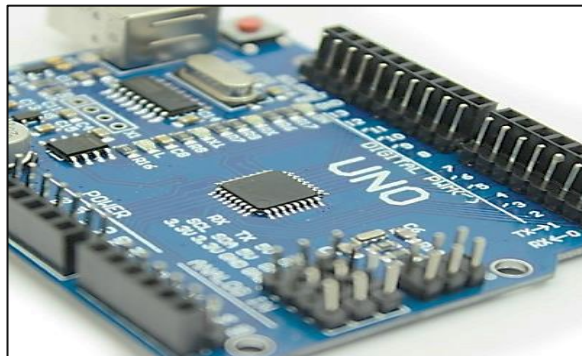
Fingerprint identification is one of the most well known and common biometric identification system Because of their uniqueness & consistency over time. The record of the fingerprints of various students and other information will be maintained in a database. The communication between the pc and module was done by ***ARDUINO REV3 (clone)*** circuit.

- ✓ For controlling both these modules the microcontroller board, ***ARDUINO REV3 (clone)***.
- ✓ GUI: ***Microsoft Visual Basic .Net 2013./ python***
- ✓ Database: ***MS Access.***

ABOUT HARDWARE

CIRCUIT DESCRIPTION:-

ARDUINO /Genuino Rev 3 (Clone)



- ✓ ARDUINO/genuinouno is a microcontroller board based on the atmega328p . It has 14 digital input/output pins (of which 6 can be used as pwm-pulse width modulation outputs), 6 analog inputs, a 16 MHZ quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a ac-to-dc adapter or battery to get started.
- ✓ “Uno” means one in Italian and was chosen to mark the release of Arduino software (ide) 1.0. The uno board and version 1.6.1 of Arduino software (ide) were the reference versions of Arduino, now evolved to newer releases. The uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards.

TECHNICAL SPECIFICATION:-

Microcontroller	Atmega328p
Operating voltage	5v
Input voltage(recommended)	7-12v
Input voltage (limit)	6-20v
Digital i/o pins	14 (of which 6 provide pwm output)
PWM digital i/o pins	6
Analog input pins	6
Dc current per i/o pin	20ma
Dc current for 3.3v pin	50ma
Flash memory	32 kb (atmega328p)
SRAM	2 kb (atmega328p)
EPROM	1 kb (atmega328p)
Length	68.6 mm
Width	53.4 mm
Weight	25 g

SENSOR DESCRIPTION

FINGERPRINT MODULE R305 V1.6

- ✓ Optical biometric fingerprint reader with great features and can be embedded into a variety of end products, such as: access control, attendance, safety deposit box, car door locks.

FEATURES:-

- ✓ Integrated image collecting and algorithm chip together, all-in-one
- ✓ Fingerprint reader can conduct secondary development, can be embedded into a variety of end products
- ✓ Low power consumption, low cost, small size, excellent performance
- ✓ Professional optical technology, precise module manufacturing techniques
- ✓ Good image processing capabilities, can successfully capture image up to resolution 500 dpi

SPECIFICATIONS:-

Fingerprint sensor type:	Optical
Sensor life:	100 million times
Static indicators:	15kvbacklight: bright green
Interface:	USB1.1/uart(TTL logical level)
Rs232 communication baud rate:	4800bps~115200bps changeable
Dimension:	55*32*21.5mm
Image capture surface :	15—18(mm)
Verification speed:	0.3 sec
Scanning speed:	0.5 sec
Character file size:	256 bytes
Template size:	512 bytes
Storage capacity:	250
Security level:	5 (1,2,3,4,5(highest))
False acceptance rate (far) :	0.0001%
False rejection rate (fr):	0.1%
Resolution:	500 dpi
Voltage :	3.6-6.0 vdc
Working current:	Typical 90 ma, peak 150ma
Matching method:	1: n
Operating environment temperature:	-20 to 45° centigrade's

ABOUT SOFTWARE

SOFTWARE TOOLS USED:

- ✓ Microsoft visual basic .net(2013) for GUI
- ✓ MS Access for database

WHY MS-ACCESS:

- ✓ ***It's easy to use:*** MS-ACCESS is very easy to use. With only a few simple sql statements, you can build and interact with MS-ACCESS.
- ✓ ***It's secure:*** MS-ACCESS includes solid data security layers that protect sensitive data from intruders. Passwords are encrypted.
- ✓ ***It's scalable:*** MS-ACCESS can handle almost any amount of data, up to as much as 50 million rows or more. The default file size limit is about 4 GB.
- ✓ ***It runs on many operating systems:*** MS-ACCESS runs on many operating systems, including windows, linux, many varieties of unix, and others.

WHY .NET

- ✓ ***OO Language :*** it is object oriented programming language. It supports 18+ languages such as c/c#/j#/java/vb etc.
- ✓ ***It's easy to use :*** it makes form easier with use of different controls simply drag and drop.
- ✓ ***CLR(common language runtime):*** features
 - a) Deployment makes easier
 - b) Common language supported
 - c) Security mechanism secured
 - d) Software isolation
- ✓ ***It runs on many operating systems:.net*** runs on many operating systems, including windows, linux, many varieties of unix, and others.

2.0 PROJECT MANAGEMENT

2.1 Project Planning

This project has seven phases to be completed within the time line.

- a) Planning the work or objectives
- b) Collects components hardware
- c) Interface between hardware to pc
- d) Process model/ documentation
- e) Implementation (coding)
- f) Testing and maintenance
- g) Presentation and feedback

2.1.1 Project Development Approach and Planning

✓ Iterative Model

In iterative model, iterative process starts with a simple implementation of a small set of the software requirements and iteratively enhances the evolving versions until the complete system implements and ready to be deployed. An iterative life cycle model doesn't attempt to start with a full specification of requirements. Instead development begins by specifying and implementing part of the software.

2.1.2 Milestones and Deliverables (step by step output):

When planning of project, a series of milestone should be established. The milestone is in end-points of the software process activity. All projects have important events called milestones that marks significant point in the development as they represent difficult handles to pass or critical task that must be completed on time.

The completion of each phase of SDLC is milestone in linear sequential model. Each completing phase raises the project work 10-15% towards last end product expected.

a)

- ✓ Students enter their fingerprints into the device.
- ✓ Every fingerprint has a special id for every record. This id takes the other step, which is matching with database.
- ✓ The system checks on the fingerprint and sends to the circuit and the student database.
- ✓ In this database file, the system checks this print for the identification.

b)

- ✓ First collect all the components related to this system such as ARDUINO rev 3(clone) , fingerprint sensor module R305_v1.6 .
- ✓ All components interact with PC and connect ARDUINO circuit with fingerprint sensor module.

c)

- ✓ For ARDUINO circuit with PC download ARDUINO IDE software v1.6.1 and interface fingerprint sensor module.
- ✓ Attach library files for connect fingerprint sensor.

d)

- ✓ Prepare report of system such as which technology used in this system.

2.1.3 Roles and responsibilities :

Activities	Responsibilities
Information Gathering	Patel Mrunal&NarekarRushabh
Requirement Analysis	Panchal Meet &Narekar Rushabh
Project Planning	Patel Mrunal&NarekarRushabh&Panchal Meet
Documentation	Patel Mrunal&NarekarRushabh&Panchal Meet
Designing	Patel Mrunal
Coding	Patel Mrunal&NarekarRushabh&Panchal Meet
Implementation	NarekarRushabh&Panchal Meet
Testing	NarekarRushabh&Panchal Meet

2.2 Project Scheduling

Project scheduling consists of identifying the tasks needed to complete the project, determine the dependency among different tasks, plan the starting and ending dates for various tasks and determine the chain of tasks that determine the duration of the projecting scheduling.

ID	Task Name	Duration	June	July	August	September
1	Information Gathering	2 Week				
2	Requirement Analysis	2 Week				
3	Project Planning	1 Week				
4	Documentation	1 Week				
5	Designing	1 month				
6	Coding	1 month				
7	Implementation	3.5 weeks				
8	Testing	1.5 month				

2.3 Risk Management



- a) Risk Response
- b) Risk life cycle
- c) Risk Identification
- d) Risk Monitoring and Control

1. Risk Identification

After establishing the context, the next step in the process of managing risk is to identifying potential risk are about events that, when triggered cause problem. Hence, Risk identification start with the source of problems, or with the problems itself.

2. Risk Analysis

Once risk have been identified, they must then be assessed as to their potential severity of loss and to the probability occurrence. Regardless of the prevents techniques employed, possible threats that could arise inside or outside the organization need to be assessed.

3. Risk Planning

Once risk have been identified and assesses ,all techniques to manage the risks fall into one or more of these four major categories:

- ✓ Tolerance
- ✓ Treat

-
- ✓ Terminate
 - ✓ Transfer

2.4 EFFORTS AND ESTIMATION

- ✓ **To achieve reliable cost and effort estimate, a number of options arise:**

1. Delay estimation until late in the project.
2. Base Estimates on similar projects that have been already completed.
3. Use relatively simply decomposition techniques to generate project cost & effort estimates.
4. Use one or more empirical models for software cost and estimation.

- ✓ **Cost Analysis:**

The primary object of the cost benefits analysis is to find out whether it is economically worthwhile to invest in the project.

- Cost benefits analysis is a term that refers both do:
 1. A formal discipline used to help apprise, or assess, case for project or proposal, which itself Is a process known as project appraisal.
 2. An informal approach to making decisions of any kind.

3.0 SYSTEM REQUIREMENT STUDY

3.1 User Characteristics

In our system there are 3 types of modules include:

1. Administrator
2. Faculty
3. Student

Administrator

1. Admin manage all modules.
2. Admin add, delete, modify data and manage it.
3. Admin handles whole system.

Faculty

1. Faculty take attendance of the students.
2. Generate the report.

Student

1. Student use the fingerprint attendance system.
2. Seen the report generated by the faculty of students.

3.2FUNCTIONAL REQUIREMENTS

Administrator

Whole system is managed by Administrator. Administrator has to update and monitor the registered student details, add a new student, provide register number for all students, assign each student a course etc., Administrator can update his profile, and also can give help to the teachers and students.

Student

User can only view their personal details, course assigned, and edit their assigned course and can view their attendance.

Faculty

User can add them onto the portal and view their schedules, marks attendance of the students, also can view the students details in graphical order, also of a single student and about the views from the students.

3.2NON-FUNCTIONAL REQUIREMENTS

Performance

Easy tracking of records and updating can be done. All the requirements relating to performance characteristics of the system are specified in the section below. There are two types of requirements.

A. Static Requirements

These requirements do not impose any constraints on the execution characteristics of the system. They are:

1) Number of Terminals:

The software makes use of an underlying database that will reside at the server, while the front end will be available online to the administrative and departmental computers as well as students and teachers.

2) Number of Users:

The number of users may vary, as this software finds applications in almost all department of the organization.

B. Dynamic Requirements

These specify constraints on the execution characteristics of the system. They typically include response time and throughout of the system. Since these factors are not applicable to the proposed software, it will suffice if the response time is high and the transactions are carried out precisely and quickly.

Reliability

The software will not be able to connect to the centralized database in the event that the college LAN fails or in the event of the server being down due to a hardware or software failure.

Availability

The software will be available only to authorized users of the colleges like teachers to mark the students attendance, student to view their enrolled course, admin to add an update students records

Security

The security requirements deal with the primary security. The software should be handled only by the administrator and authorized users. Only the administrator has right to assign permission like creating new accounts and generating password. Only authorized users can access the system with username and password.

Maintainability

Backups for database are available.

Portability

The Software is application and is built in .NET/PYTHON and MYSQL so it is platform independent and is independent of operating system.

3.3 Hardware & Software Requirements

✓ Software Requirement

User Side

- Front End : PYTHON
- Back End :MS-ACCESS,ARDUINO
- Operating System : Windows XP or above

✓ Hardware Requirement

User Side

- Pentium4 Processor
- 80 GB hard disk
- 512 MB RAM

3.4 Constraints

3.4.1 Hardware& Requirements:

This software provides security the login form prevents the system from being misused by unauthorized users. Only an authorized operator will be granted rights to modify as per requirements. This software is also reliable and fault tolerant. The system developed is designed to handle invalid inputs.

3.4.2 External Interface Requirements

3.4.2.1 User Interfaces

- ✓ GUI along with meaningful Frames and buttons
- ✓ Reports are generated as per the requirement
- ✓ Refer Appendices 2

3.4.2.2 Hardware Interfaces

- ✓ Hardware Environment Pentium4 Processor
- ✓ System Configuration RAM-512 MB HDD-80GB
- ✓ Operating system Windows XP/Vista/7/8/8.1

3.4.3 Software Interfaces

When invalid inputs are given to the modules then the error messages will be popped up in order to inform the user that the input provided is not taken by the database. When incomplete information is provided by the user and the user tries to submit the form in order to store the details in the database the system will pop up a message box asking the user to enter all the details required.

3.5 Assumption and Dependencies

- ✓ We assume that the Office personnel do all the data entry based and the correct values obtained from forms and registers.
- ✓ We assume that the computers that will use the software will be part of the College LAN.
- ✓ Users with administrator access should be careful in deleting or modifying any information knowingly or unknowingly which will lead to inconsistency of the Database.
- ✓ The end users of this software are assumed to have basic level of computer knowledge i.e. point and click.

4.0 SYSTEM ANALYSIS

4.1 Feasibility Study

An important outcome of the preliminary investigation is the determination that the system is feasible or not. The main aim of the feasibility study activity is to determine whether it would be financially and technically feasible to develop a project.

The feasibility study activity involves the analysis of the problem and collection of all relevant information relating to the product such as the different data items which would be input to the system, the processing required to be carried out on these data, the output required to be produced by the system as well as the various constraints on the behaviour of the system. During feasibility study most of the high level architectural design decisions are made.

1. Economic Feasibility

Economic analysis is most frequently used for evaluation of the effectiveness of the system. More commonly known as cost/benefit analysis the procedure is to determine the benefit and saving that are expected from a system and compare them with costs, decisions is made to design and implement the system.

This part of feasibility study gives the top management the economic justification for the new system. This is an important input to the management, because very often the top management does not like to get confounded by the various technicalities that bound to be associated with a project of this kind.

2. Technical feasibility

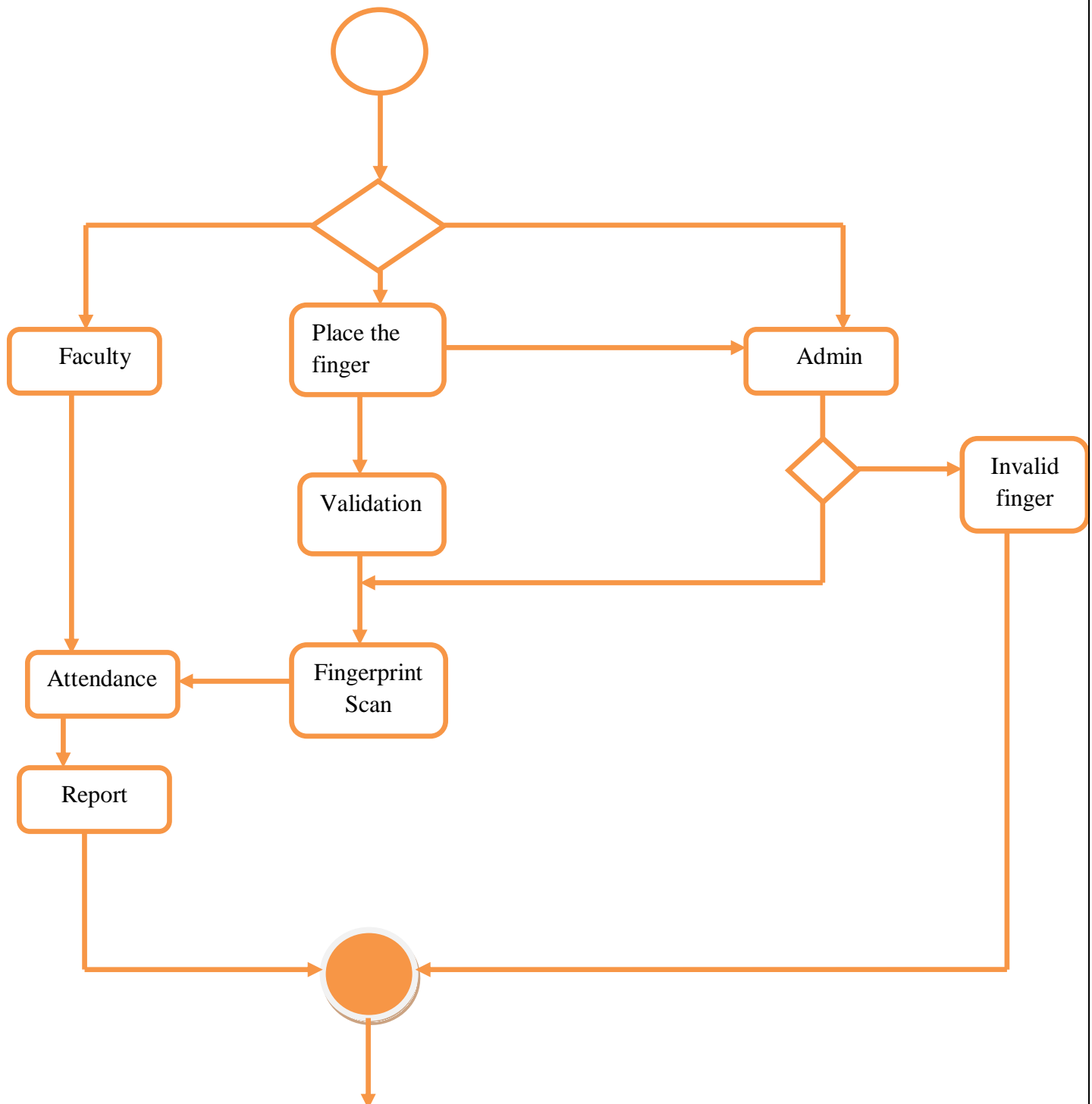
The technical requirement for the system is economic and it does not use any other additional Hardware and software.

3. Behavioural Feasibility

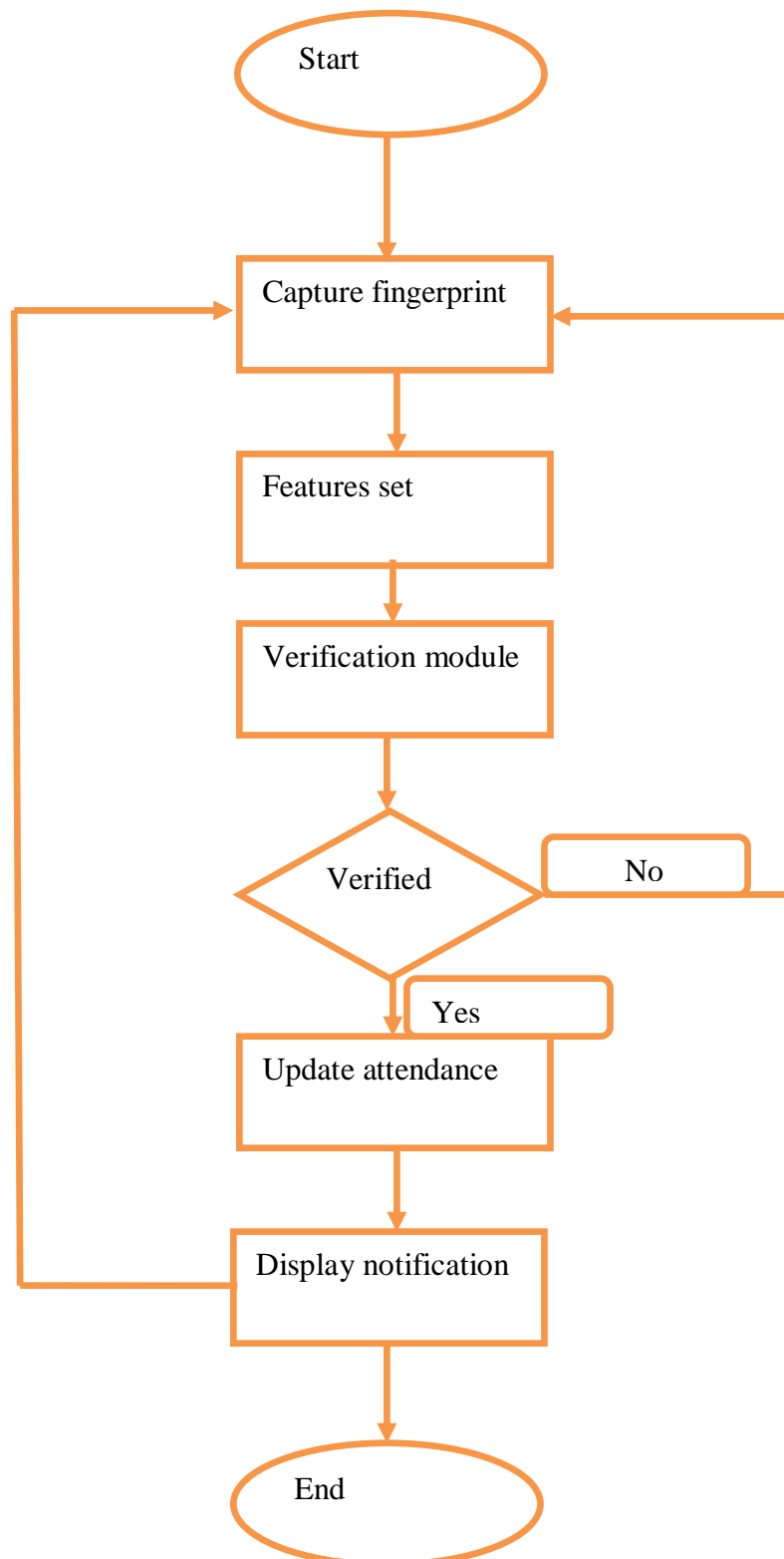
The system working is quite easy to use and learn due to its simple but attractive interface. User requires no special training for operating the system.

4.2 Activities/Processes/Modules & Features In the New System

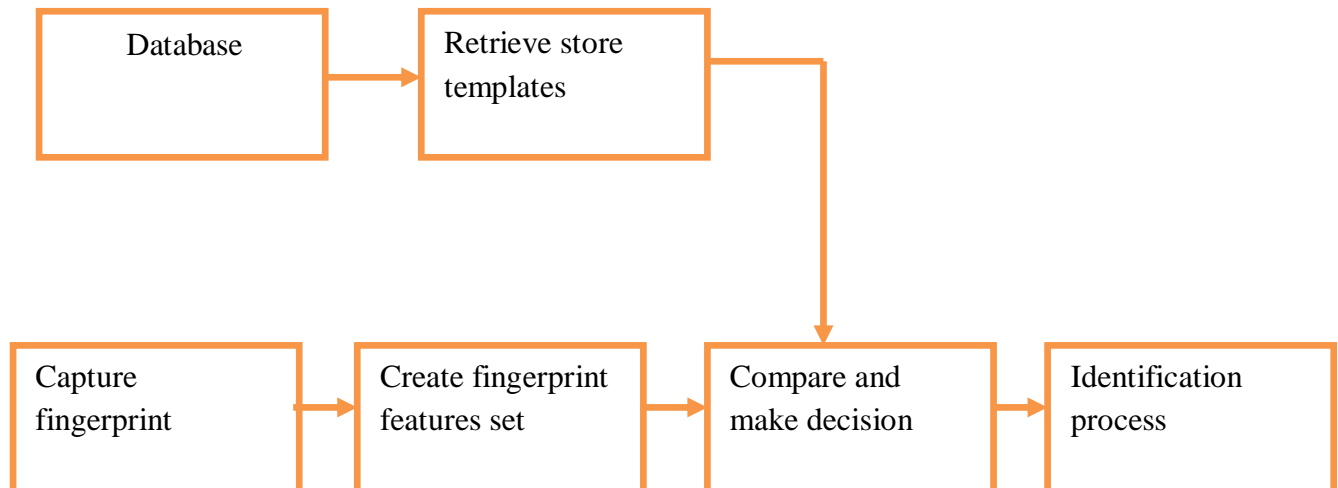
4.2.1 ACTIVITY DIAGRAM



4.2.2 FLOWCHART OF THE SYSTEM



4.2.3 IDENTIFICATION PROCESS



Reset

ICSP for USB interface

USB to computer

7 to 12V DC input

ICSP for Atmega328

VCC MOSI GND

ARDUINO UNO

ATmega328P

DIGITAL (PWM~) TX RX

POWER

ANALOG IN

ICSP

(I2C) SDA (I2C) SCL

(SPI) SCK (SPI) MISO (SPI) MOSI (SPI) SS

Interrupt 1 Interrupt 0

ICSP for Atmega328

VCC MOSI GND

ARDUINO UNO

ATmega328P

DIGITAL (PWM~) TX RX

POWER

ANALOG IN

ICSP

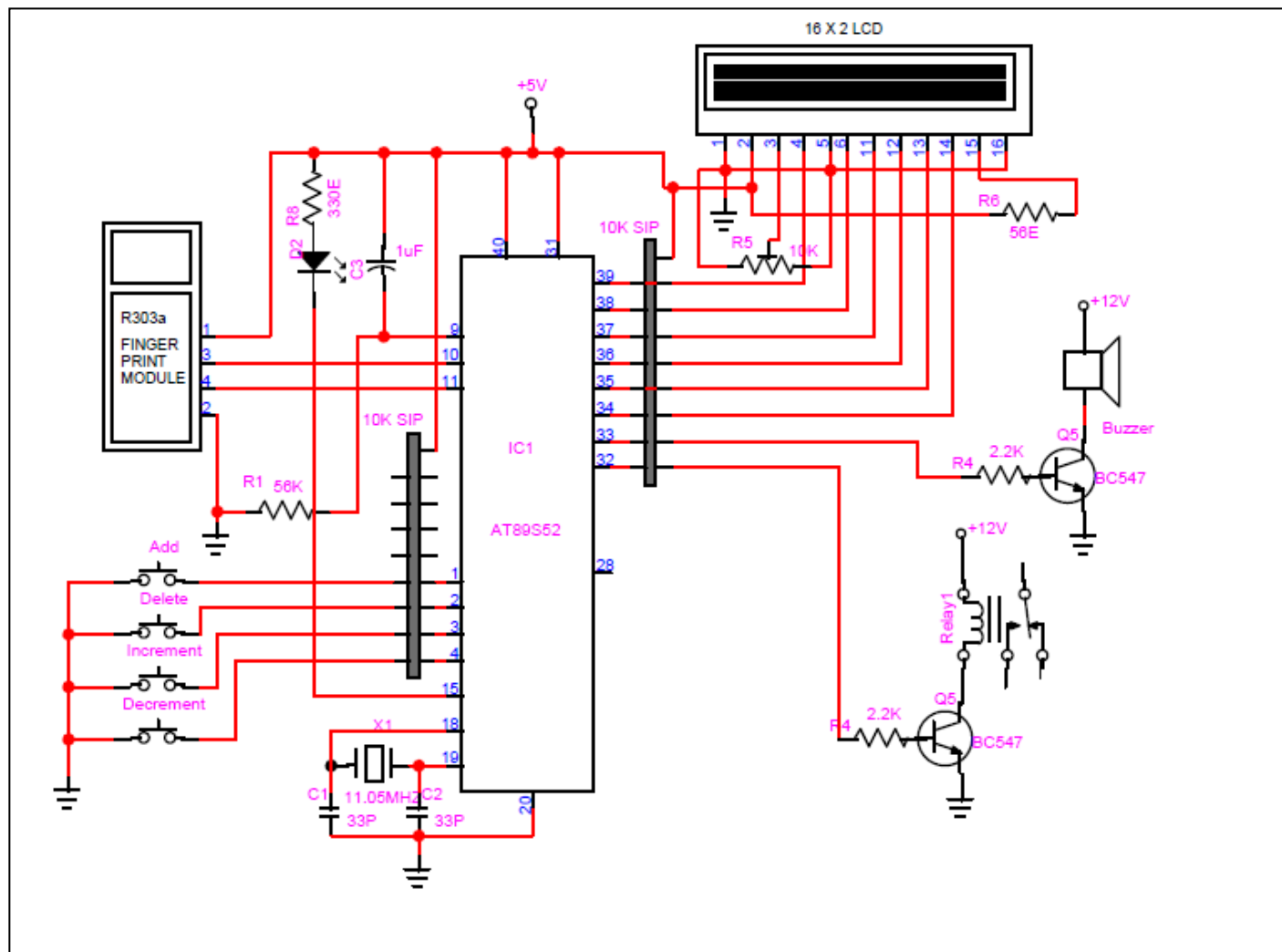
(I2C) SDA (I2C) SCL

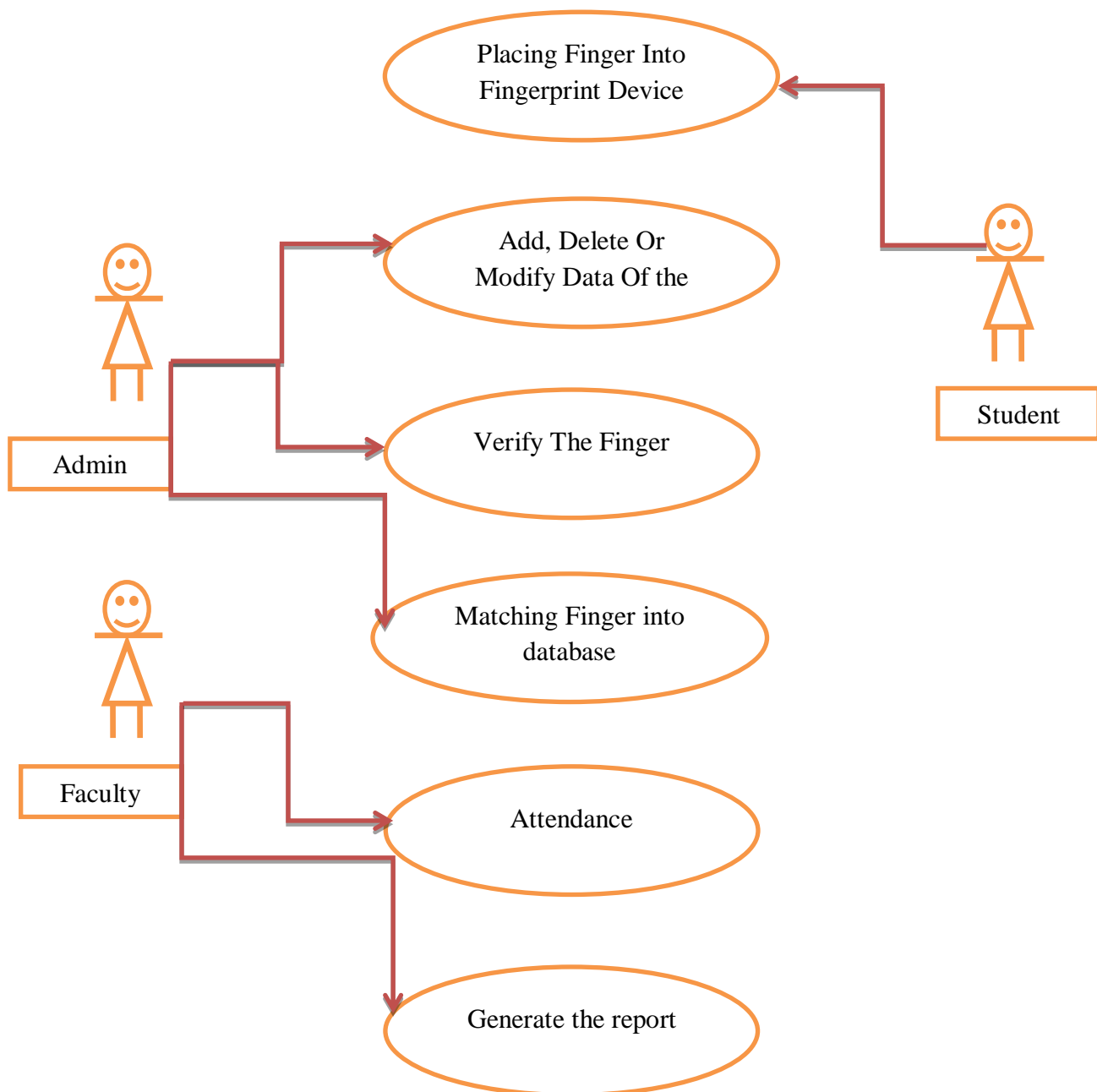
(SPI) SCK (SPI) MISO (SPI) MOSI (SPI) SS

Interrupt 1 Interrupt 0

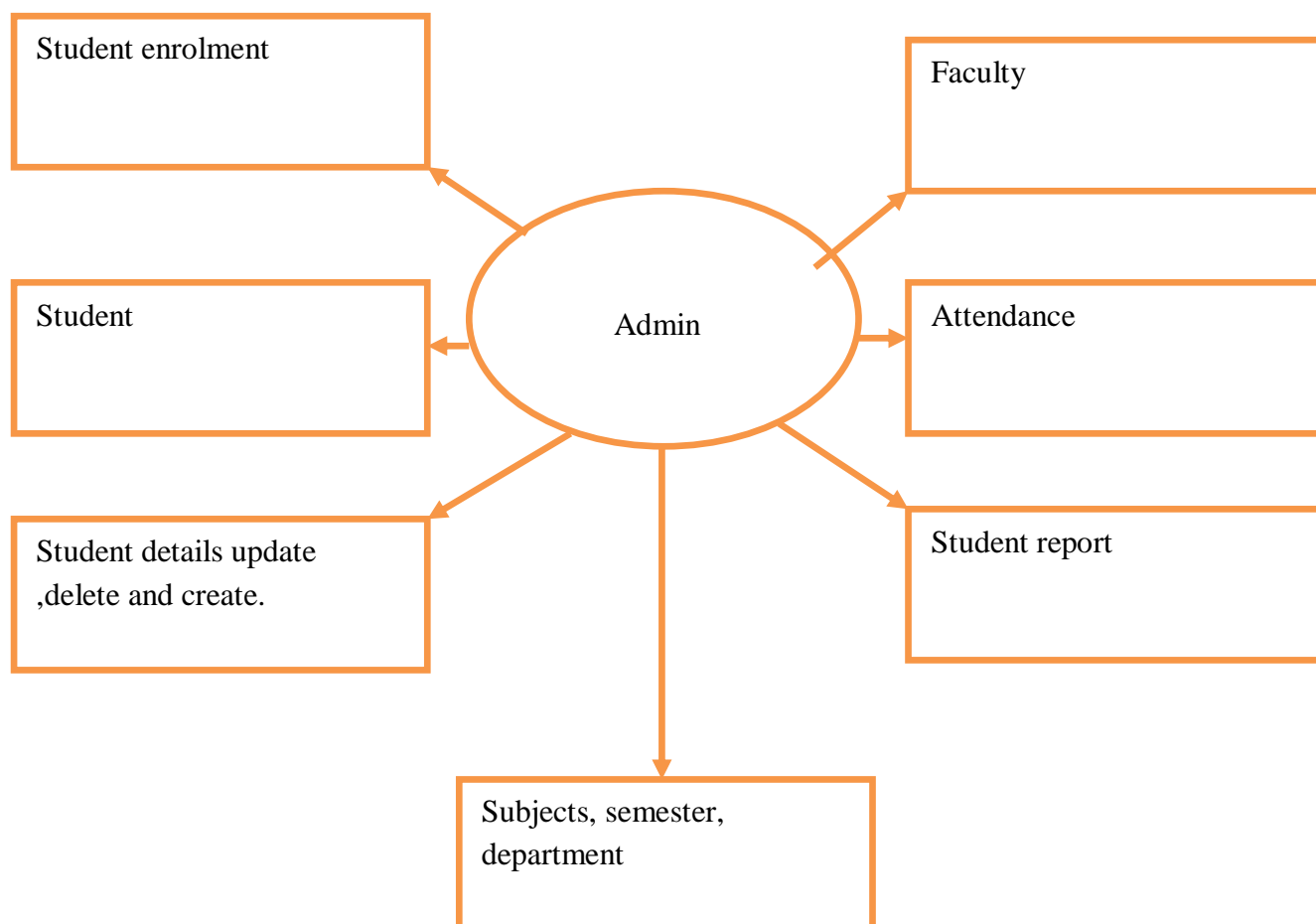
ICSP for Atmega328

VCC MOSI GND

PIN DIAGRAM OF FINGERPRINT SENSOR(R305)

4.3 System Activity Diagram (Use case and/or Scenario diagram)**USECASE DIAGRAM**

4.4SEQUENCE DIAGRAM



5.0 SYSTEM DESIGN

5.1 DATABASE DESIGN/DATA STRUCTURE DESIGN

5.1.1 DATA DICTIONARY (TABLES AND RELATIONSHIP)

Admin Table

Purpose: This table store admin information.

Primary key: Admin id

NO.	Field Name	Data Type	Size	Constrains	Description
1	Admin id	Varchar	10	Primary key	Unique id for admin
2	Admin name	Varchar	50	Not null	Name of the admin
3	Password	Varchar	50	Not null	Set Password

Finger_MatchTable :

Purpose: This table store status of attendance.

Primary key: ID

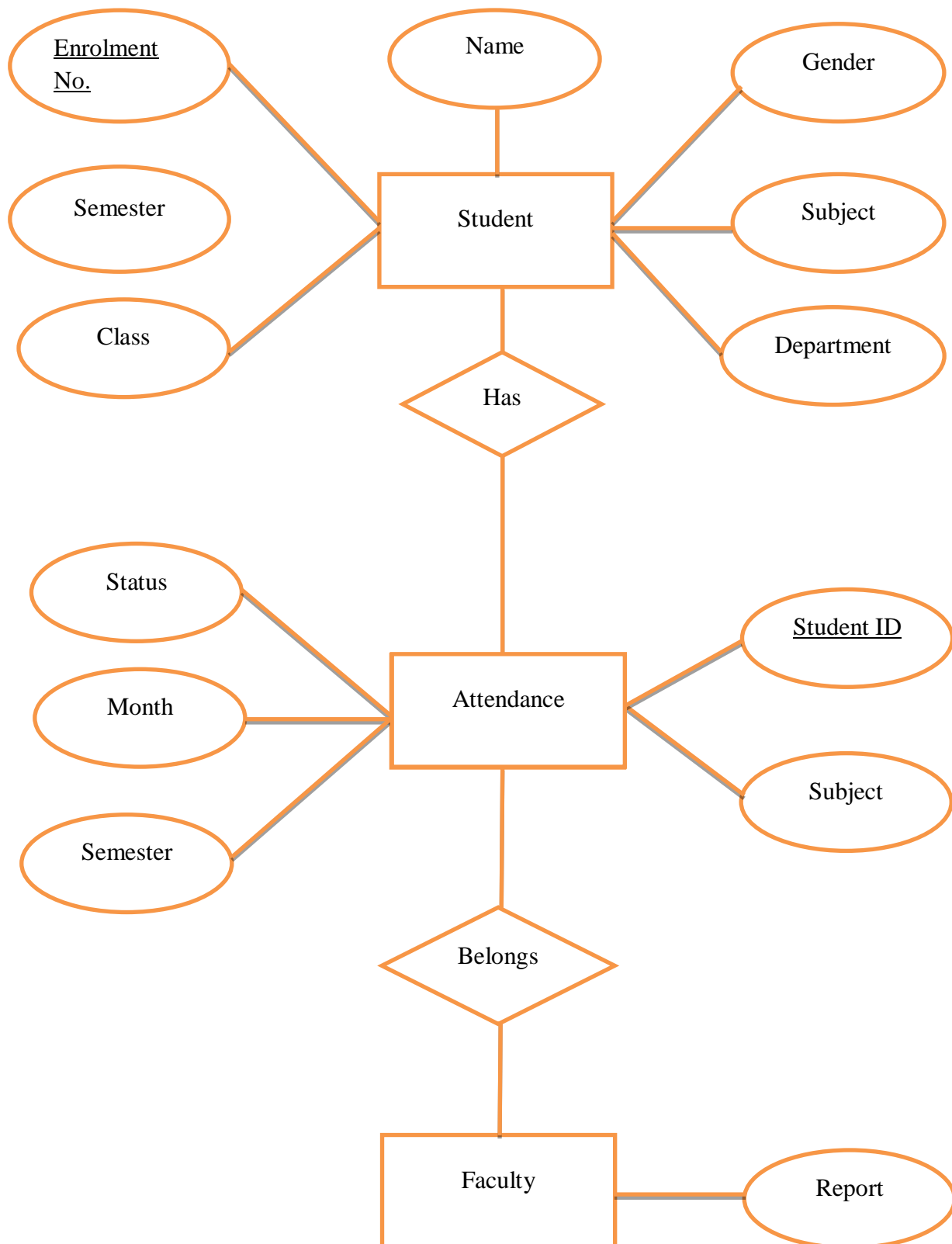
No.	Field Name	Data Type	Size	Constrains	Description
1	Id	Number	10	Primary key	Unique id of Students
2	Time	Date & time	50	Not null	Date and time
3	P/A	Varchar	50	Not null	Status (Present or absernt)

Student table

Purpose: This table store the student information.

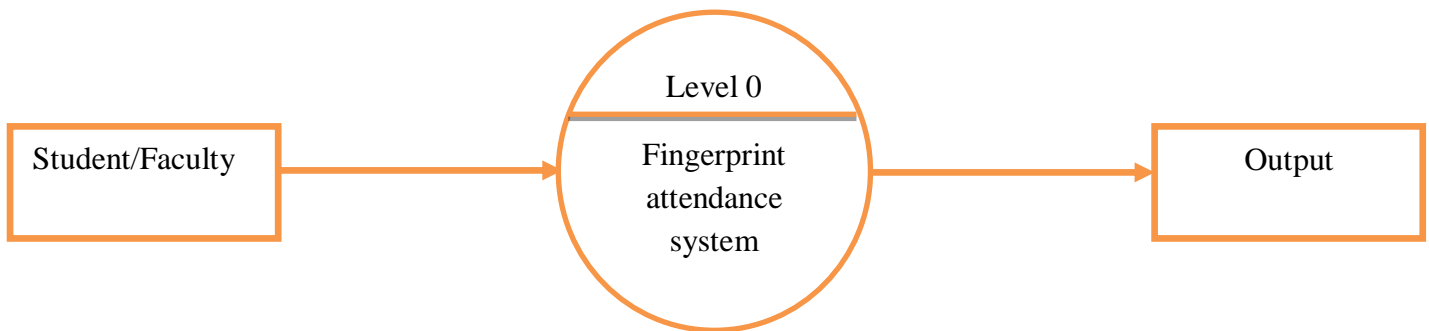
Primary key: Student id

No.	Field Name	Data Type	Size	Constrains	Description
1	Student id	Varchar	10	Primary key	Unique id of student
2	Student name	Varchar	50	Not null	Name of the student
3	Semester	Number	5	Not null	Semester of the student
4	Class	Varchar	20	Not null	Class of the student
5	Subject	Varchar	20	Not null	Subject of the student
6	Department	Varchar	20	Not null	Department of the student
7	Gender	Varchar	20	Not null	Gender Male/Female

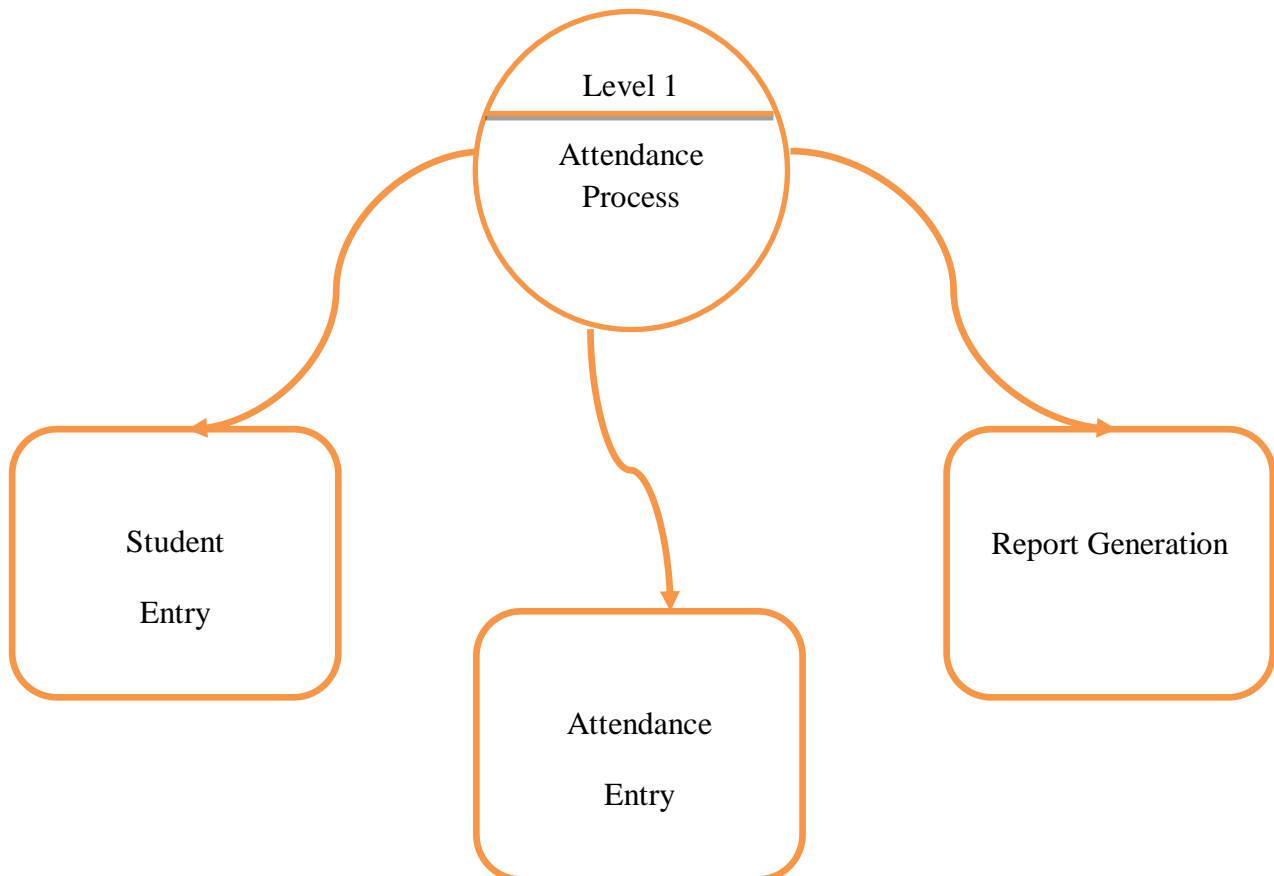
5.1.2 ER Diagram

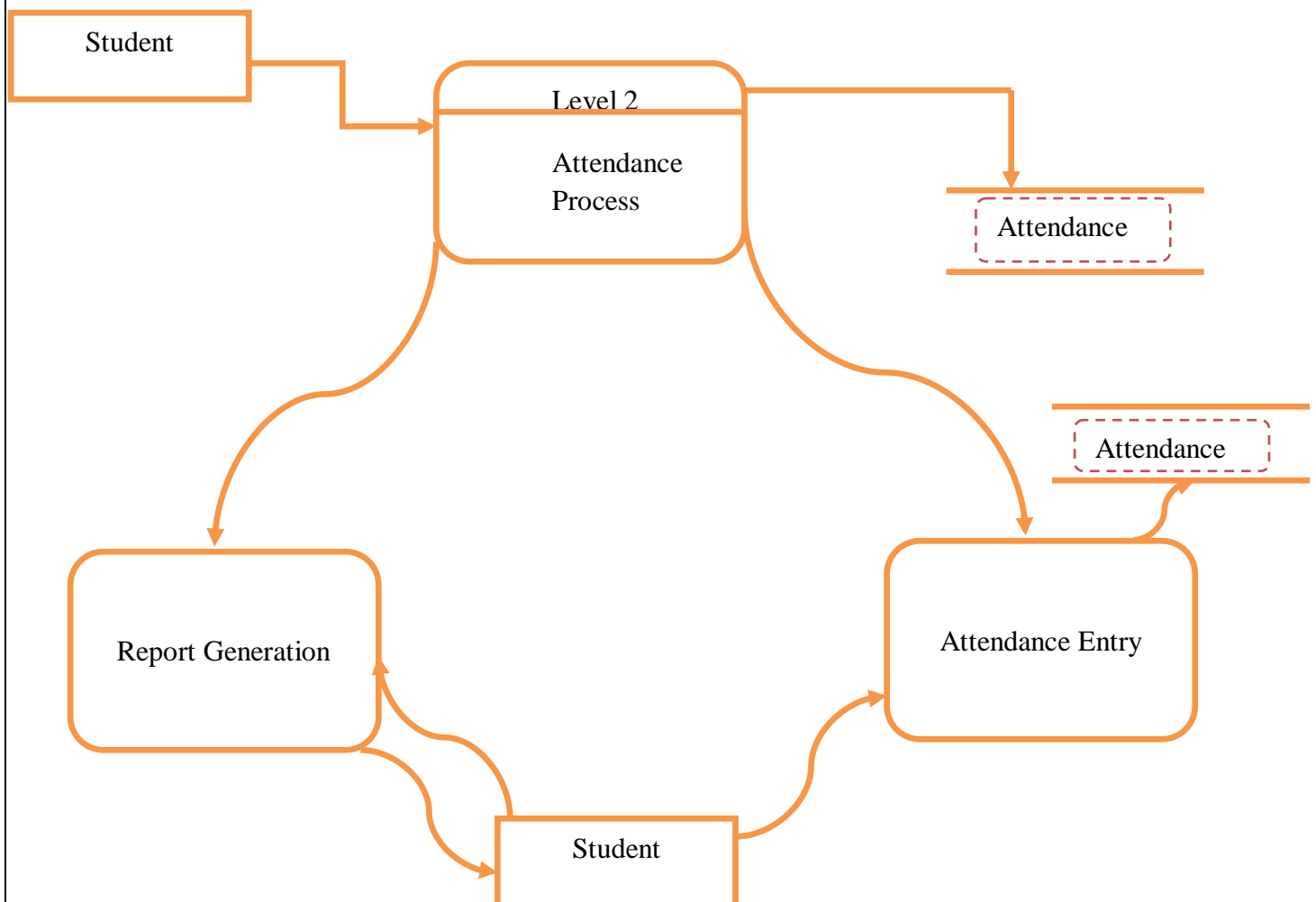
5.1.3 DATA FLOW DIAGRAM

Level 0 data flow diagram

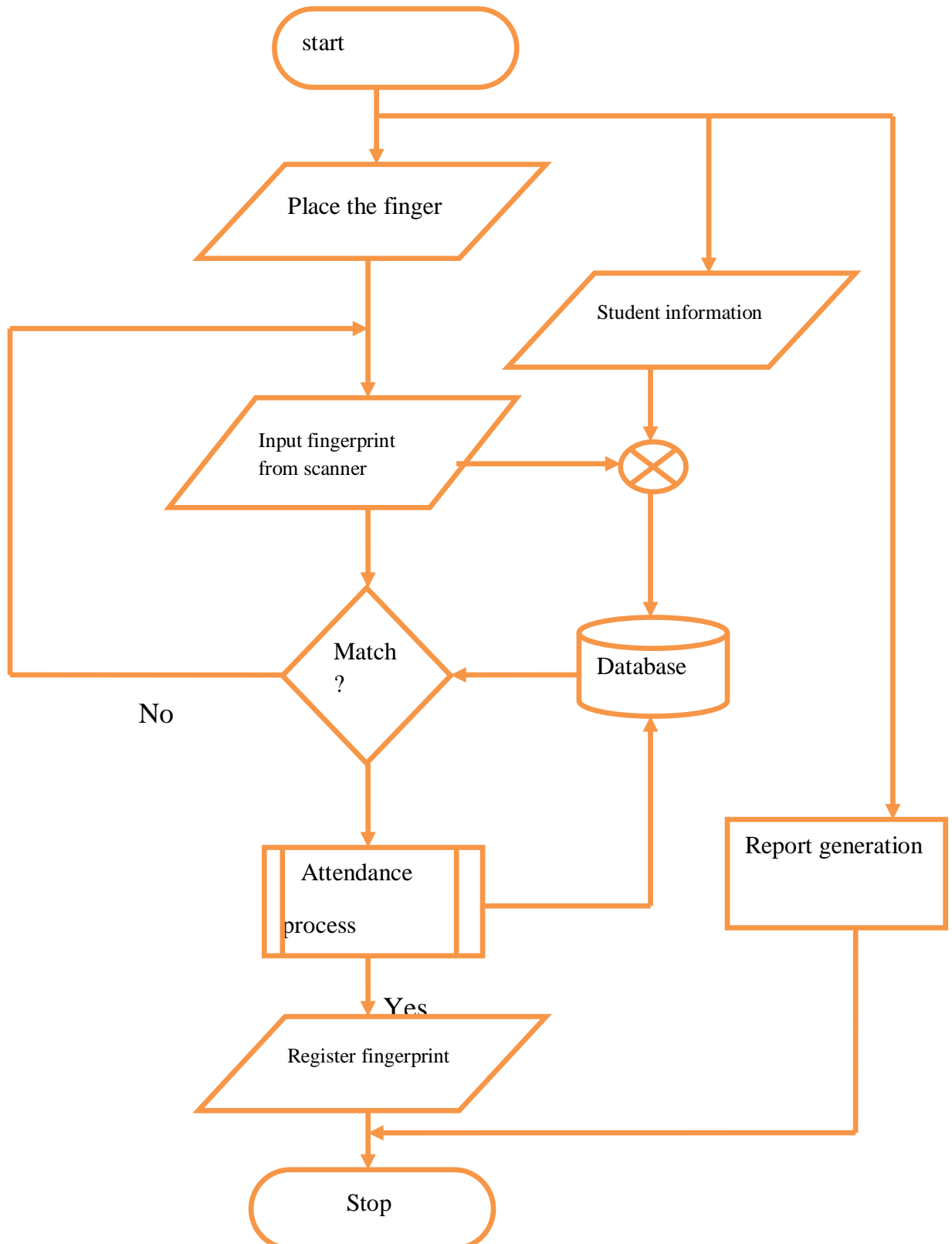


Level 1 data flow diagram



Level 2 data flow diagram

5.2 INPUT/OUTPUT AND INTERFACE DESIGN



6.0 IMPLEMENTATION PLANNING

6.1 IMPLEMENTATION ENVIRONNENT (SINGLE VS MULTI USER, GUI VS NON GUI, ETC.)

- ✓ We tested our algorithm on several databases like MS Access and Verify databases. We used a computer with 8GB RAM and 2.0 GHz Intel core 7 processor and softwares like VB.NET and MS Access 10.
- ✓ The main purpose of this software for automated fingerprint attendance system.
- ✓ When development was completed system testing was performed to test the system.

6.2 PROGRAM/MODULES SPECIFICATION

In our system there are 3 types of modules include:

4. Administrator
5. Faculty
6. Student

Administrator

4. Admin manage all modules.
5. Admin add, delete, modify data and manage it.
6. Admin handles whole system.

Faculty

3. Faculty take attendance of the students.
4. Generate the report.

Student

3. Student use the fingerprint attendance system.
4. Seen the report generated by the faculty of students.

6.3 CODING STANDARDS

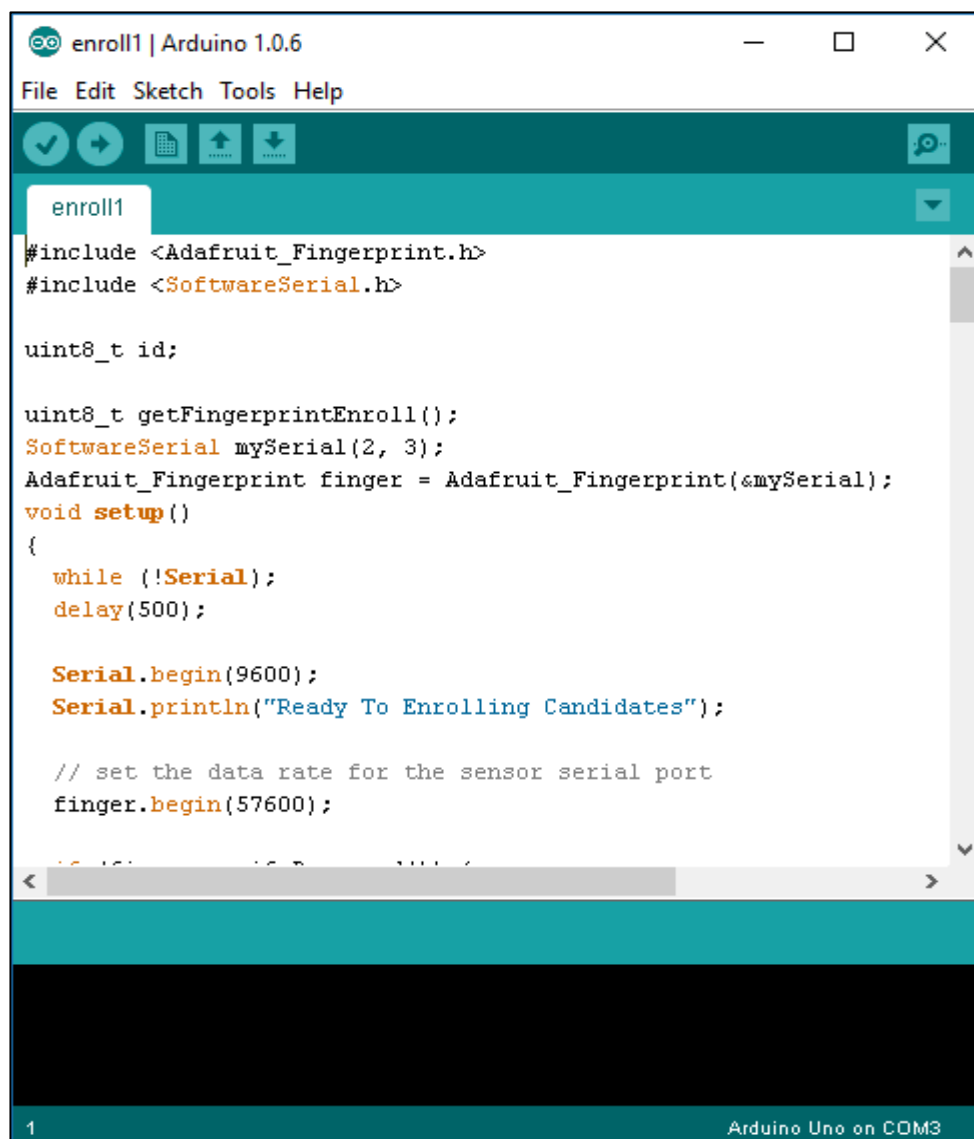
- ✓ To design and develop attendance system using Microsoft visual studio 2012 and fingerprint scanner R305.
- ✓ To provide medium level of security available simply because biometric identifiers can't be lost, transferred or duplicated or stolen.
- ✓ To expose learn and expand knowledge in coding.
- ✓ Most effective compared to card based system.

7.0 TESTING

7.1 TESTING PLAN & STRATEGY

BACK END FOR ARDUINO SOFTWARE (SNAPSHOT)

FOR ENROLLING FINGER :



```
enroll1 | Arduino 1.0.6
File Edit Sketch Tools Help

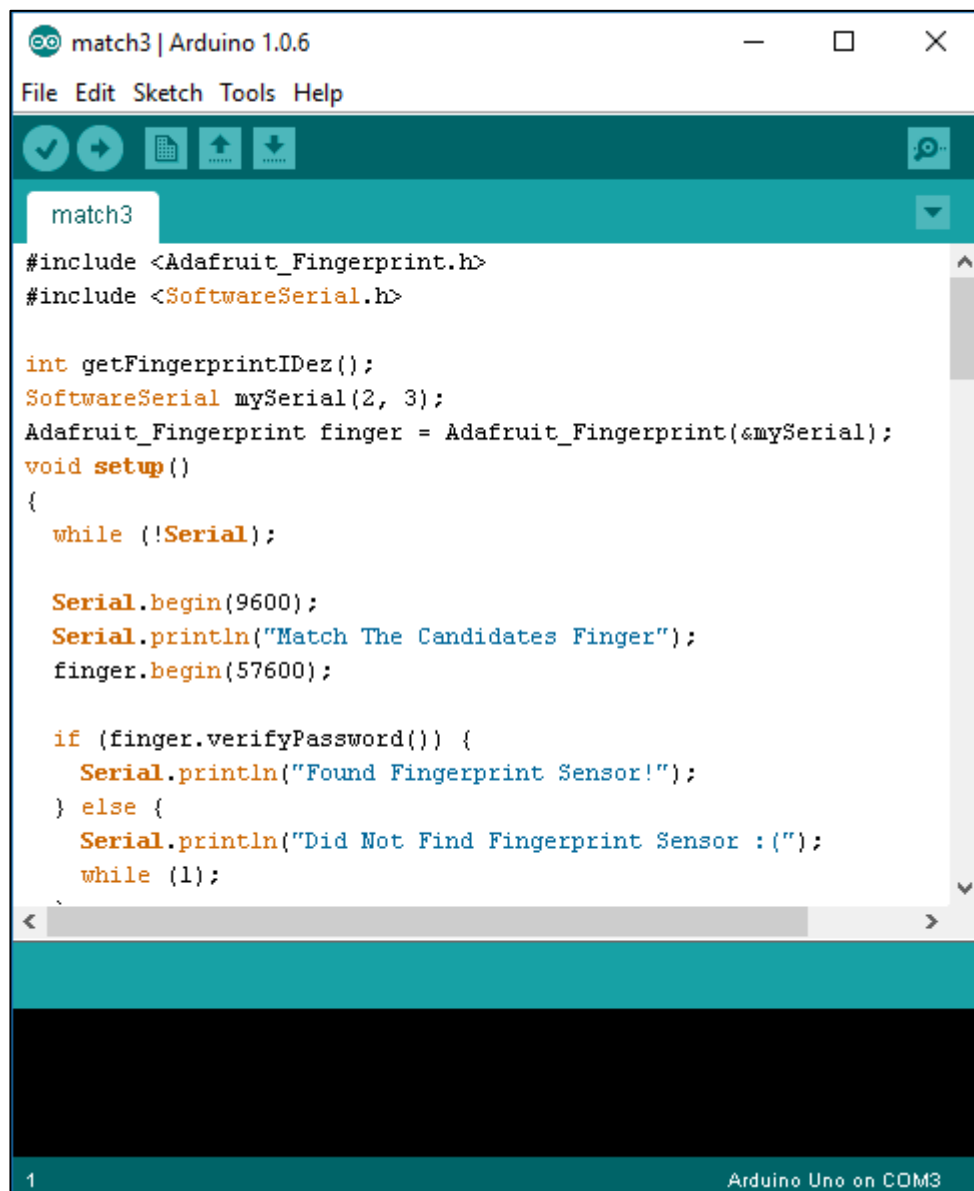
enroll1
#include <Adafruit_Fingerprint.h>
#include <SoftwareSerial.h>

uint8_t id;

uint8_t getFingerprintEnroll();
SoftwareSerial mySerial(2, 3);
Adafruit_Fingerprint finger = Adafruit_Fingerprint(&mySerial);
void setup()
{
  while (!Serial);
  delay(500);

  Serial.begin(9600);
  Serial.println("Ready To Enrolling Candidates");

  // set the data rate for the sensor serial port
  finger.begin(57600);
}
```

FOR MATCHING FINGER :A screenshot of the Arduino IDE interface. The window title is 'match3 | Arduino 1.0.6'. The menu bar includes 'File', 'Edit', 'Sketch', 'Tools', and 'Help'. Below the menu bar is a toolbar with icons for checking, running, saving, and uploading. The sketch name 'match3' is displayed in a teal bar. The main text area contains the following code:

```
#include <Adafruit_Fingerprint.h>
#include <SoftwareSerial.h>

int getFingerprintIDez();
SoftwareSerial mySerial(2, 3);
Adafruit_Fingerprint finger = Adafruit_Fingerprint(&mySerial);
void setup()
{
  while (!Serial);

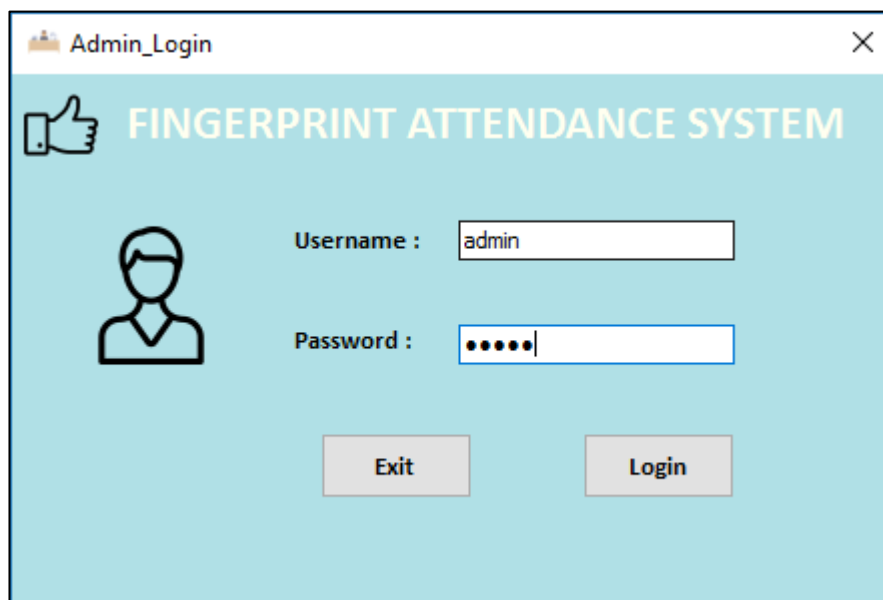
  Serial.begin(9600);
  Serial.println("Match The Candidates Finger");
  finger.begin(57600);

  if (finger.verifyPassword()) {
    Serial.println("Found Fingerprint Sensor!");
  } else {
    Serial.println("Did Not Find Fingerprint Sensor :(");
    while (1);
  }
}
```

The status bar at the bottom shows '1' on the left and 'Arduino Uno on COM3' on the right.

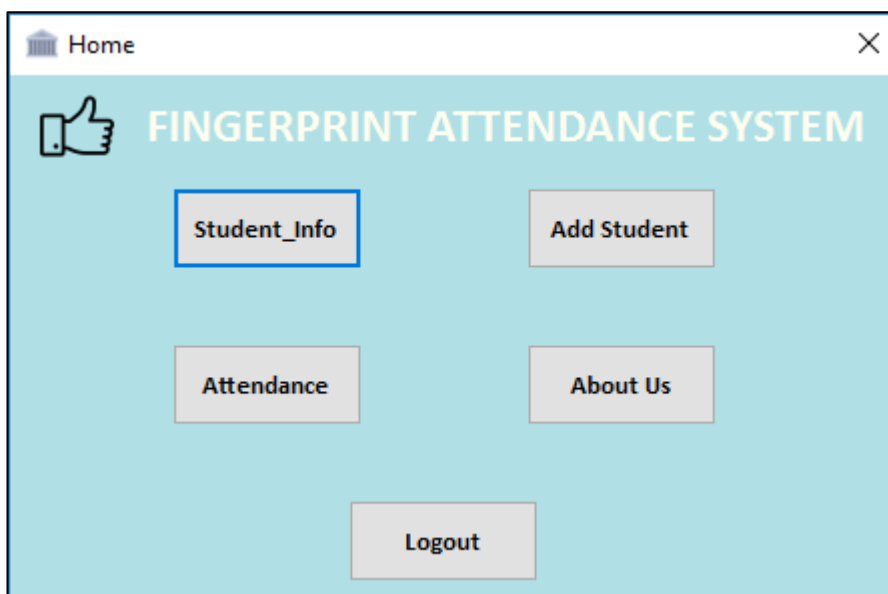
FRONT END VB.NET SOFTWARE (SNAPSHOT)

LOGIN PAGE :



The Admin_Login window features a light blue background. At the top left is a thumbs-up icon, and at the top right is a close button (X). The title bar reads "Admin_Login". The main heading "FINGERPRINT ATTENDANCE SYSTEM" is displayed in large, bold, yellow letters. Below the heading, on the left, is a black silhouette of a person's head and shoulders. To the right of the silhouette, the text "Username :" is followed by a text box containing the word "admin". Below this, the text "Password :" is followed by a text box with five black dots and a cursor. At the bottom, there are two buttons: "Exit" on the left and "Login" on the right.

HOME PAGE :



The Home window has a light blue background. At the top left is a thumbs-up icon, and at the top right is a close button (X). The title bar reads "Home". The main heading "FINGERPRINT ATTENDANCE SYSTEM" is displayed in large, bold, yellow letters. Below the heading, there are five buttons arranged in a grid: "Student_Info" (top left, highlighted with a blue border), "Add Student" (top right), "Attendance" (bottom left), "About Us" (bottom right), and "Logout" (centered at the bottom).

STUDENT INFORMATION :

Candidates Information

FINGERPRINT ATTENDANCE SYSTEM

Enter Valid ID

12

12

Delete Candidate

Enrollment No 12

Student Name meet

Semester 7

Department I.T

Date Of Birth 29/03/1999

Mobile No 9687113602

Address Delhi

ADD STUDENT :

Candidates Submit

FINGERPRINT ATTENDANCE SYSTEM

Enrollment No : 12

Set Port COM3

Student Name : MEET

Department : I.T

Semester : 6

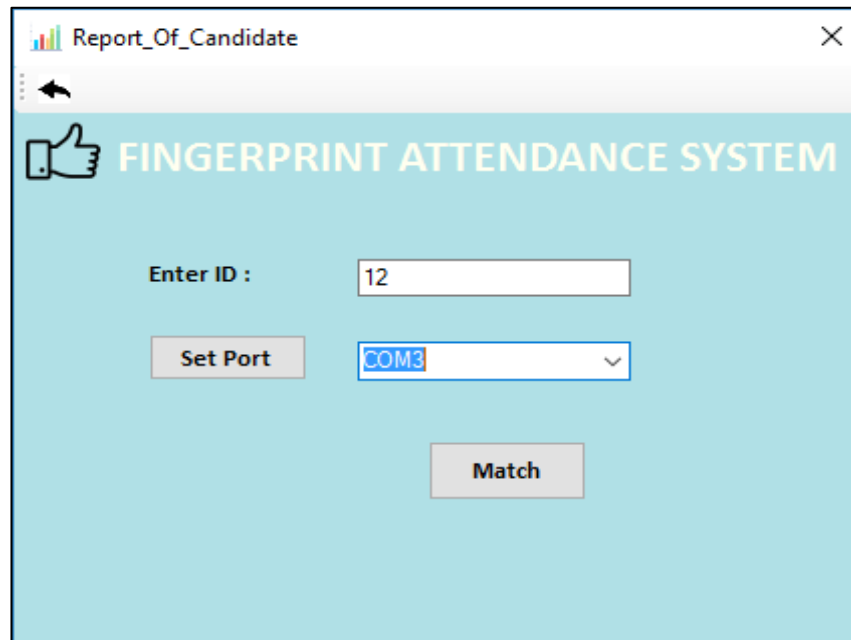
Date Of Birth : 31/12/1999

Address : DELHI

Mobile No : 9687451562

Submit Candidate

ATTENDANCE :



Report_Of_Candidate

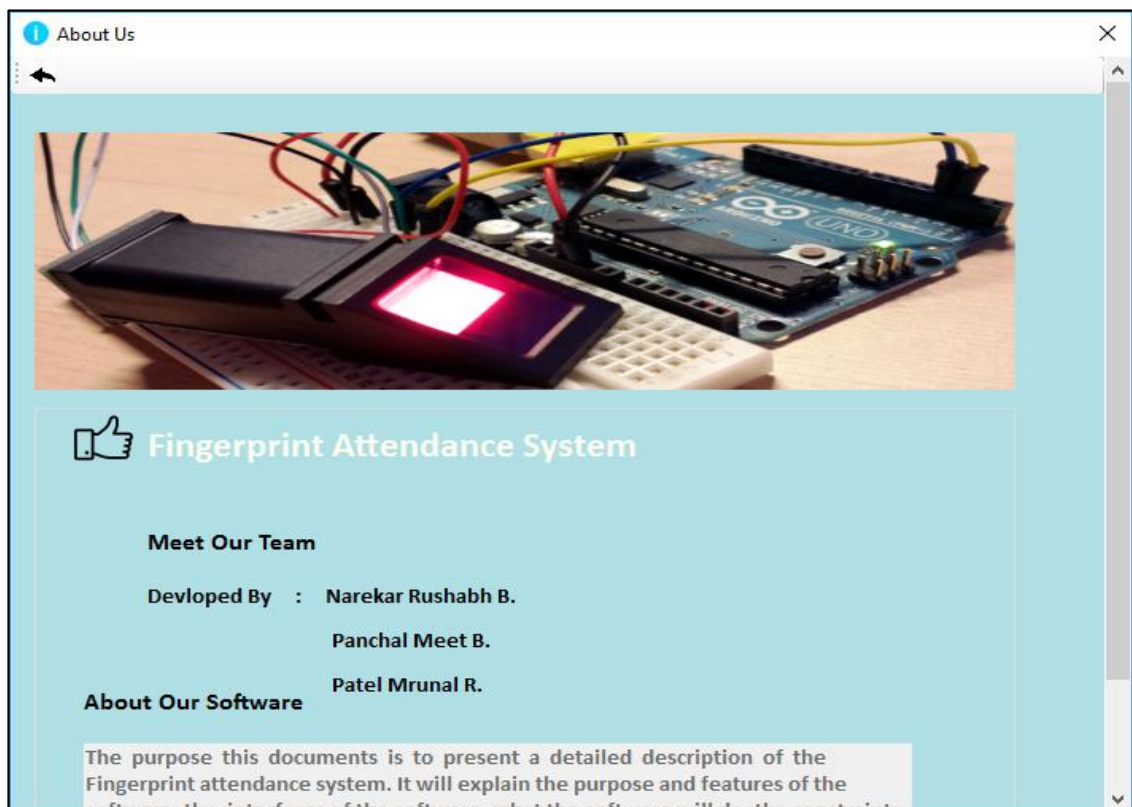
FINGERPRINT ATTENDANCE SYSTEM

Enter ID :

Set Port

Match

ABOUT US :



About Us

Fingerprint Attendance System

Meet Our Team

Developed By : Narekar Rushabh B.
Panchal Meet B.
Patel Mrunal R.

About Our Software

The purpose this documents is to present a detailed description of the Fingerprint attendance system. It will explain the purpose and features of the software, the interface of the software, what the software will do, the constraints

7.2 TESTING METHODS

There are two main methods for testing

- 1 WHITE BOX TESTING
- 2 BLACK BOX TESTING

1. BLACK BOX TESTING :

- ✓ It is testing process in which tester can performed testing on a software without having an internal structure knowledge of software.
- ✓ Usually test engineers are involved in the black box testing.

2. WHITE BOX TESTING :

- ✓ It is testing process in which tester can performed testing on a software with having an internal structure knowledge of software.
- ✓ Usually test developers are involved in the white box testing.

7.3 TEST CASES

Testing

Software testing is a critical element of software quality assurance and represents the ultimate review specification design and code generation.

PURPOSE	ATTENDANCE
Required input	Enrolment no, name , semester , address
Expected result	Student attendance

8.0 LIMITATIONS AND FUTURE ENHANCEMENTS

LIMITATIONS :

- ✓ Using the fingerprint scanner does not take into consideration when a person physically changes.
- ✓ The cost of computer hardware and software programs can be expensive.
- ✓ Using the fingerprint scanner can lead to false rejections.
- ✓ Using the fingerprint scanner can lead to false acceptances.

FUTURE ENHANCEMENTS :

- ✓ Two computers connected via LAN and a fingerprint scanner will be used initially.
- ✓ One computer will serve the purpose of server for storing reports which may be MSAccess, MS Excel or SQL/Oracle database. Other one will be storing the enrolled database, will have software for automatic attendance management and will be connected to USB fingerprint scanner.
- ✓ Software for automatic attendance management that will run on nodes could either be developed in the Matlab or Java. We can run java code on matlab, also java is better for handling network communications. So except fingerprint related functions rest of automatic attendance management software will be designed using java.
- ✓ A website will be hosted on the server for online access to attendance reports. For this purpose, html, JSP or ASP dotnet would be used.
- ✓ Fingerprint identification system will be improved further using more indexing techniques like ridge density tolerance etc.
- ✓ Instead of using database available on internet, we would be using database of students

9.0 CONCLUSION

9.1 SELF ANALYSIS, PROBLEMS ENCOUNTERED AND POSSIBLE SOLUTIONS

- ✓ This project mainly comprised of development of attendance management system and fingerprint identification system. Attendance management is very helpful in saving valuable time of students and teachers, paper and generating report at required time.
- ✓ This project presented a framework using which attendance management can be made automated and on-line. A general implementable approach to attendance management was proposed using LAN. Further, an idea for using portable devices along with wireless LAN or mobile 3G network was suggested.
- ✓ Fingerprint Identification System used for student identification is faster in implementation than any other fingerprint identification systems. For fingerprint recognition, prevalent enhancement techniques like Gabor Filters[1], minutiae extraction[1] using Crossing Number concept followed by spurious and boundary minutiae removal, fingerprint classification[4], reference point detection[2], etc. are employed. Also, various new concepts are invented in this fingerprint identification system like gender estimation and key based one to many matching. Fingerprint classification and gender estimation are employed to partition the database in order to reduce search space.

9.2 SUMMARY OF PROJECT WORK

- ✓ Fingerprint attendance system is the act to managing attendance or presence in work setting to minimize lost due to student absents.
- ✓ Attendance control has traditionally using time-clocks and sheets so , this system provides efficient and very less time for attendance in record and easily generate the report.
- ✓ Unsatisfactorily attendance caused by absence or disruption in work affects the product and create the moral problem in system.
- ✓ This traditional method involves the use of sheets of papers or book in taking student attendance so, this our fingerprint system is very fast .
- ✓ Number of students have unique Id so, redundancy and duplication decrease here.