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Design & Implementation of Smart Attendance System based on Raspberry Pi 3B Module

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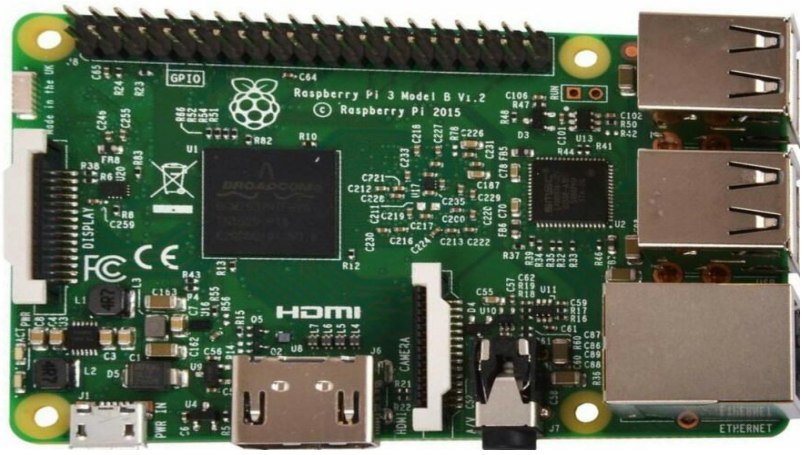
***Abstract:** Biometric system is used in now a days, the system such as voice reorganization, fingerprint key password etc. Now face recognition system is in trend in any type of organization. The face reorganization system is based on authentication and identify the person with proper features in the database and mark the attendance. The aim of the this paper for implement on the platform of Raspberry Pi module which is more simple.it has cpu which is system on chip is BCM2825,ARM11 Quad core processor The camera is pi camera is connect in camera interface port to capture the image, to detect, to recognize in real time.*
***Keywords:** System on Chip, CPU, ARM11.Picamera, Wifi module.*

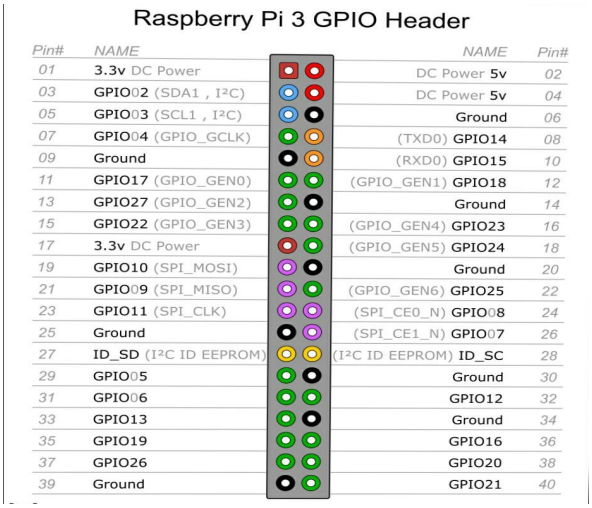
I. INTRODUCTION

Present day attendance is mark manually, because of that a amount of time is considered both teacher and student for mark the attendance. that's why some chance to mark attendance as proxy if the student not there in the class. To overcome this problem we implement the system Smart attendance system using face recognization As we know face is a only one proof for any human to mark attendance. We make the system various hardware platform but we use the platform of Raspberry pi 3module B. It is a credit card sized minicomputer. The system is placed where the student enter and exit so that proper image is to be captured and attendance is marked one by one by face reorganization algorithm and data will be send via mail using internet to the head of the department/principle. A pi camera is used for capture the image of the student and mark the attendance. A wifi module is used to send the data through internet to the server.

II. SYSTEM DISCRIPTION

1) *Raspberry pi:* The Raspberry pi is a minicomputer having system on chip CPU 64 bit of Quad core A53 ARM11 processor on chip RAM which is 1Gb, 4 USB port on chip ethernet 10/100mbps speed ,it is having 40 pin 17 pins are GPIO pins and remaining are special function pin. Below fig. Shows the raspberry pi 3B module and their pin structure

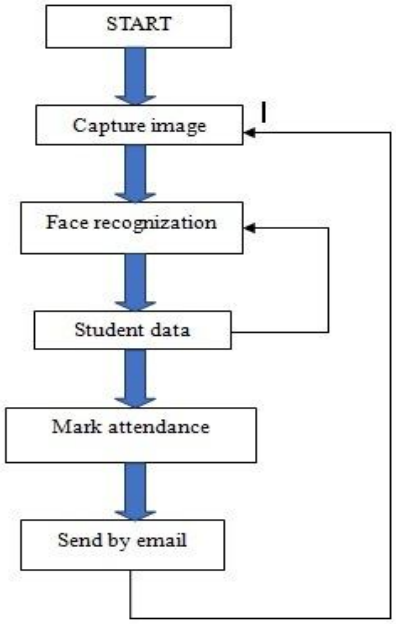




2) *Pi Camera***:** The Camera Module can be used to take high-definition video, as well as stills photographs... It supports 1080p30, 720p60 and VGA90 video modes, as well as still capture. It attaches via a 15cm ribbon cable to the CSI port on the Raspberry **Pi**.

3) *Wi-fi Module:* The **Raspberry Pi 3** comes with an on-board 802.11n Wireless LAN adapter, which means that it's no longer necessary to purchase a separate **WiFi** dongle. It's also quite a bit easier to set up.

III. FLOW CHART



1) Algorithm: This section describe the algorithm followed by system they are:

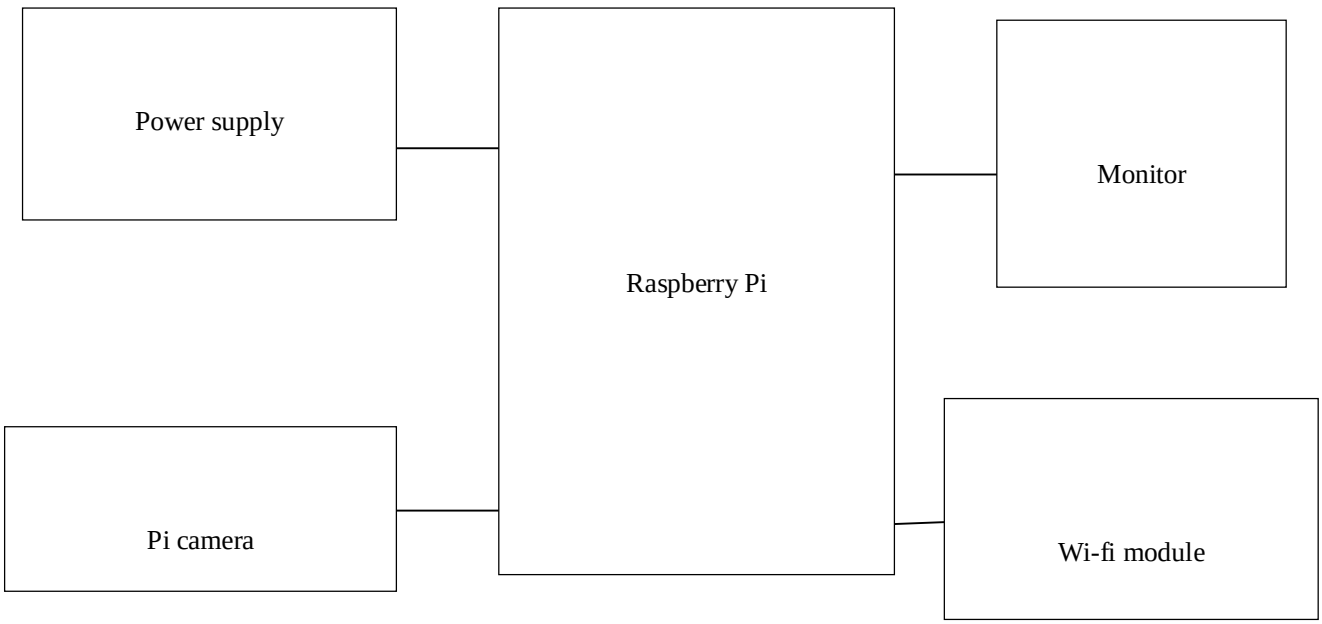
a) Capture the image in camera

b) Detect the face and check the student data recognize and mark attendance

c) Stored the result in database

d) Send the data via mail to head of department/ Principle

Block Diagram



IV. CONCLUSION

Attendence system using face recognization using Raspberry pi based technique proved that the it is time saving and secureed system in real time.

A. Future Scope

In the future work is to improve recognization rate by using infrared camera interfacing also make the algorithm to capture the more than one image or group image at same time so that time also consuming and improve the performance.

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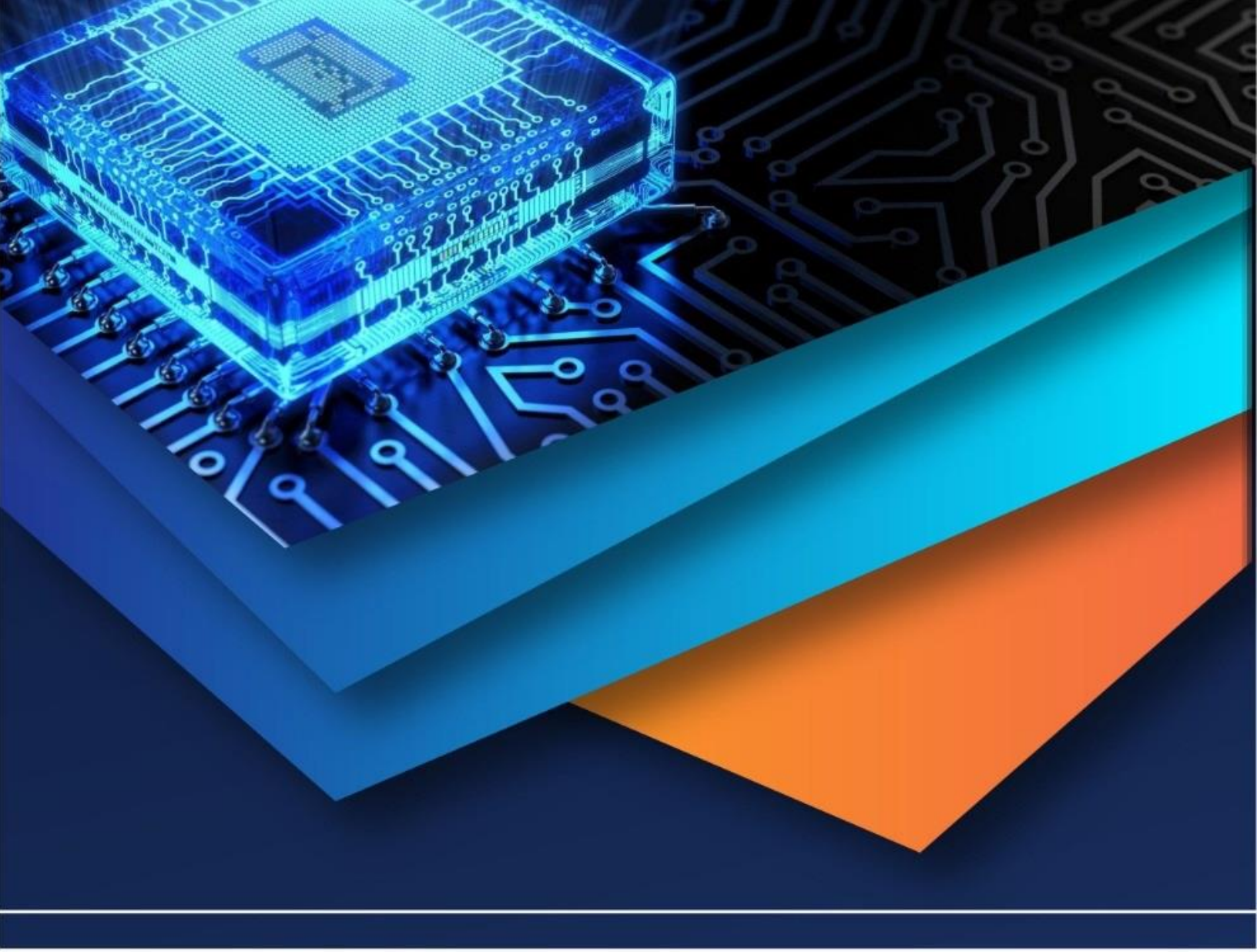

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