

MONITORING USING FACE RECOGNITION

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Abstract - Face recognition presents a challenging role in every industry, it can be used in every place for different purposes. Our project describes the solution overcoming the old biometric attendance register, security purposes. Here we using Raspberry pi 3 module for storing the images. First we must feed the photos to the module and IR obstacle sensor used to detect the person IN and OUT. So it fetches the matched photo and gives back the persons full details. Suppose unknown person maybe entered, it creates an alarm sound for safety purposes. Raspberry pi act as the storage device and Python coding program is installed in the module. So it is easy to operate and easy way to reduce manual works.

Key Words: Raspberry pi 3, Web camera, LAN cable, IR sensors, Python coding.

1. INTRODUCTION

In today's society there are different technologies used for registering the attendance at school, hospitals, educational institutions. There might be an option like Finger print, Barcode reading, swiping of ID cards. In different here we are using face recognition method by camera. By feeding some of photos in raspberry pi 3 module, the camera captures the person who coming inside or getting outside of certain places, the captured photos are then checked with feeded photos in raspberry pi. Then the persons who got identified by comparing two photos with provided details. This method not only used for attendance registration, various usages. To reduce the manual work this method can be implemented in various organizations.

1.1 COMPONENTS USED

HARDWARE:

1. Raspberry pi 3
2. USB web Camera
3. IR obstacle sensor
4. LAN cable
5. 2A power supply
6. Connecting wires

SOFTWARE:

1. MobaXterm

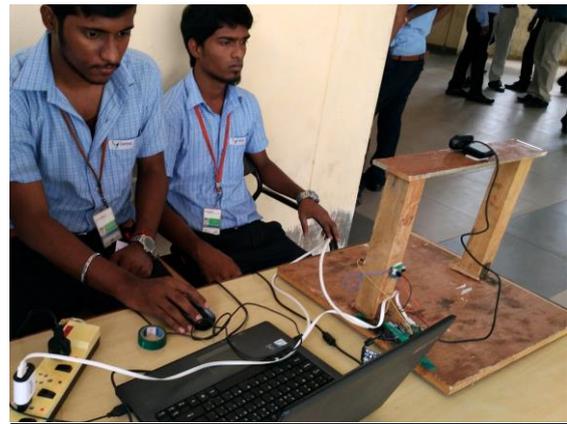
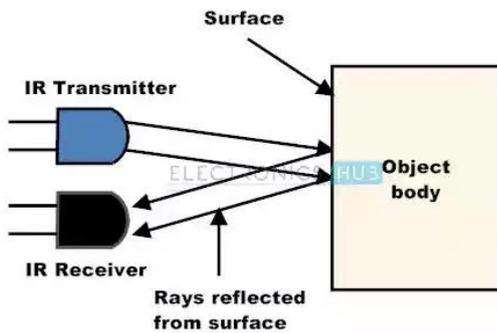
1.2 RASPBERRY PI 3

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated, selling outside of its target market for uses such as robotics. Peripherals (including keyboards, mice and cases) are not included with the Raspberry Pi. Some accessories however have been included in several official and unofficial bundles. The Raspberry Pi 3 uses a Broadcom BCM2837 SoC with a 1.2 GHz 64-bit quad-core ARM Cortex-A53 processor, with 512 KB shared L2 cache. The Raspberry Pi 3, with a quad-core Cortex-A53 processor, is described as 10 times the performance of a Raspberry Pi 1. This was suggested to be highly dependent upon task threading and instruction set use. Benchmarks showed the Raspberry Pi 3 to be approximately 80% faster than the Raspberry Pi 2 in parallelized tasks.



2. IR OBSTACLE SENSOR

The principle of IR sensor working as an object detection sensor can be explained using the following figure. An IR sensor consists of an IR LED and an IR photodiode; together they are called as photo-coupler or opto-coupler. When IR transmitter emits radiation, it reaches the object and some of the radiation reflects back to the IR receiver. Based on the intensity on the reception by the IR receiver, the output of the sensor is defined.



2.1 OBJECTIVES

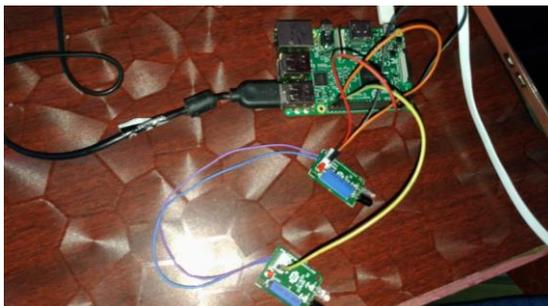
1. Reduce manual work
2. Saves time
3. Detection of unique face image amidst the other natural components such as walls, backgrounds etc...
4. Extraction of unique characteristic features of a face useful for face recognition
5. Detection of faces amongst other face characters such as beard, spectacles etc..
6. Automated update in the database without human intervention.

2.2 PROBLEM IDENTIFICATIONS

1. Consumes more time for giving attendance
2. Identity maybe get stolen(finger print)

2.3 WORKING PRINCIPLE

The main working of the project is to identify the captured photo with the provided photo in the raspberry pi 3. Some of the photos which can be feeded and stored to the raspberry pi 3, if the person entry through the door the sensor1 and sensor2 detects the person and send instruction to camera to capture the person. The captured photo is then checked with the provided photos. This method is suits for IN and OUT condition. The photo which can be matched/non matched. This status can be displayed in the screen for safety purpose.



2.4 ADVANTAGES

1. It is the only biometric able to operate without user cooperation.
2. Easy to access
3. Saves some time than other biometric
4. Cheating can be avoided by using this system
5. Used even in crowded areas

2.5 APPLICATIONS

1. Security/Counterterrorism. Access control, comparing surveillance images to Know terrorist.
2. Day Care: Verify identity of individuals picking up the children.
3. Residential Security: Alert homeowners of approaching personnel
4. Voter verification: Where eligible politicians are required to verify their identity during a voting process this is intended to stop voting where the vote may not go as expected.
5. Banking using ATM: The software is able to quickly verify a customer's face.

3. CONCLUSIONS

As the face recognition system creates some industrial change in upcoming years. So instead of using the other biometric systems we can use this system by reducing the manual works. This technology does not require any user cooperation further. Using HD cameras shows high accuracy in capturing the photos at long range also. This method has more advantage than the other systems.

REFERENCES

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