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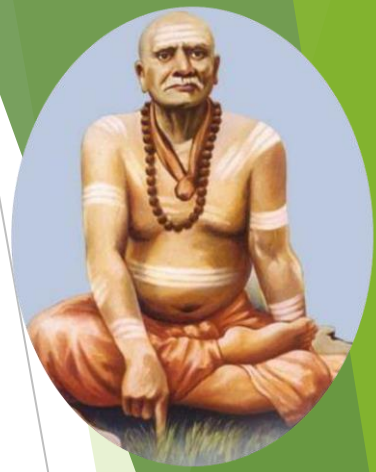
MUDHOL-587313

DEPARTMENT OF ELECTRONICS AND COMMUNCATION ENGINEERING



CONTROLLING THE SPREAD OF COVID-19 USING REMOTE SAFE SOCIAL DISTANCE MONITORING SYSTEM

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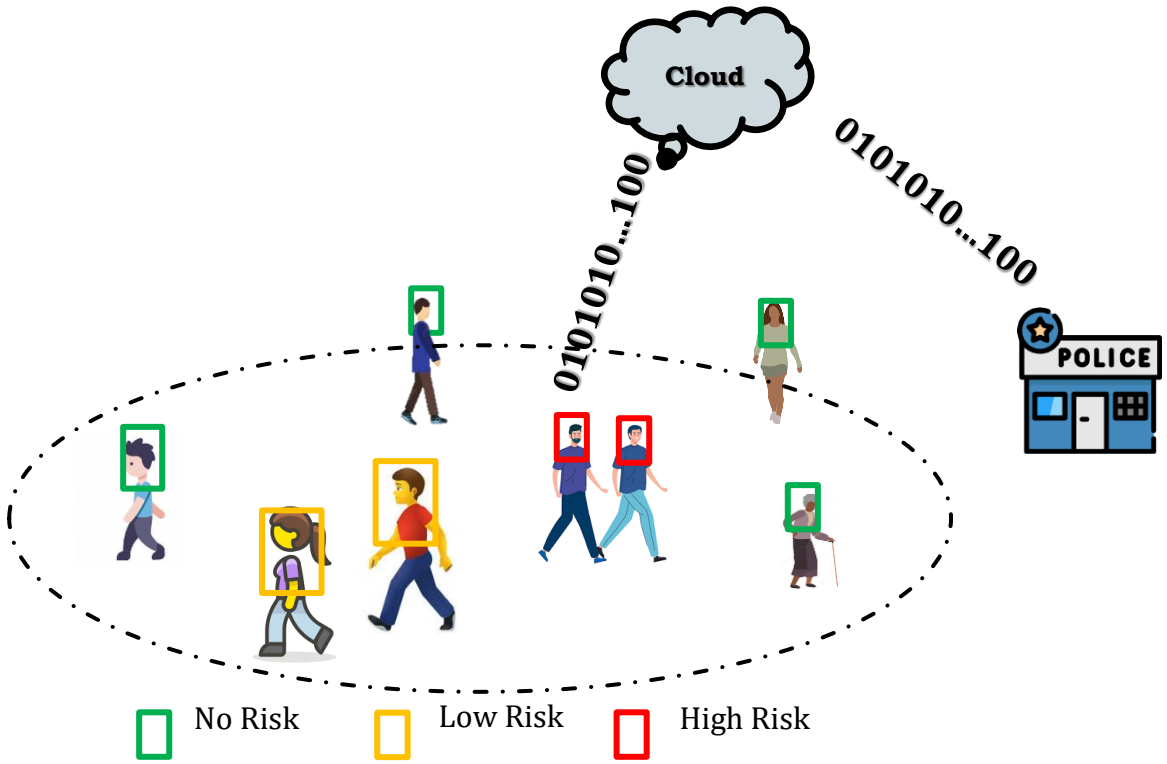
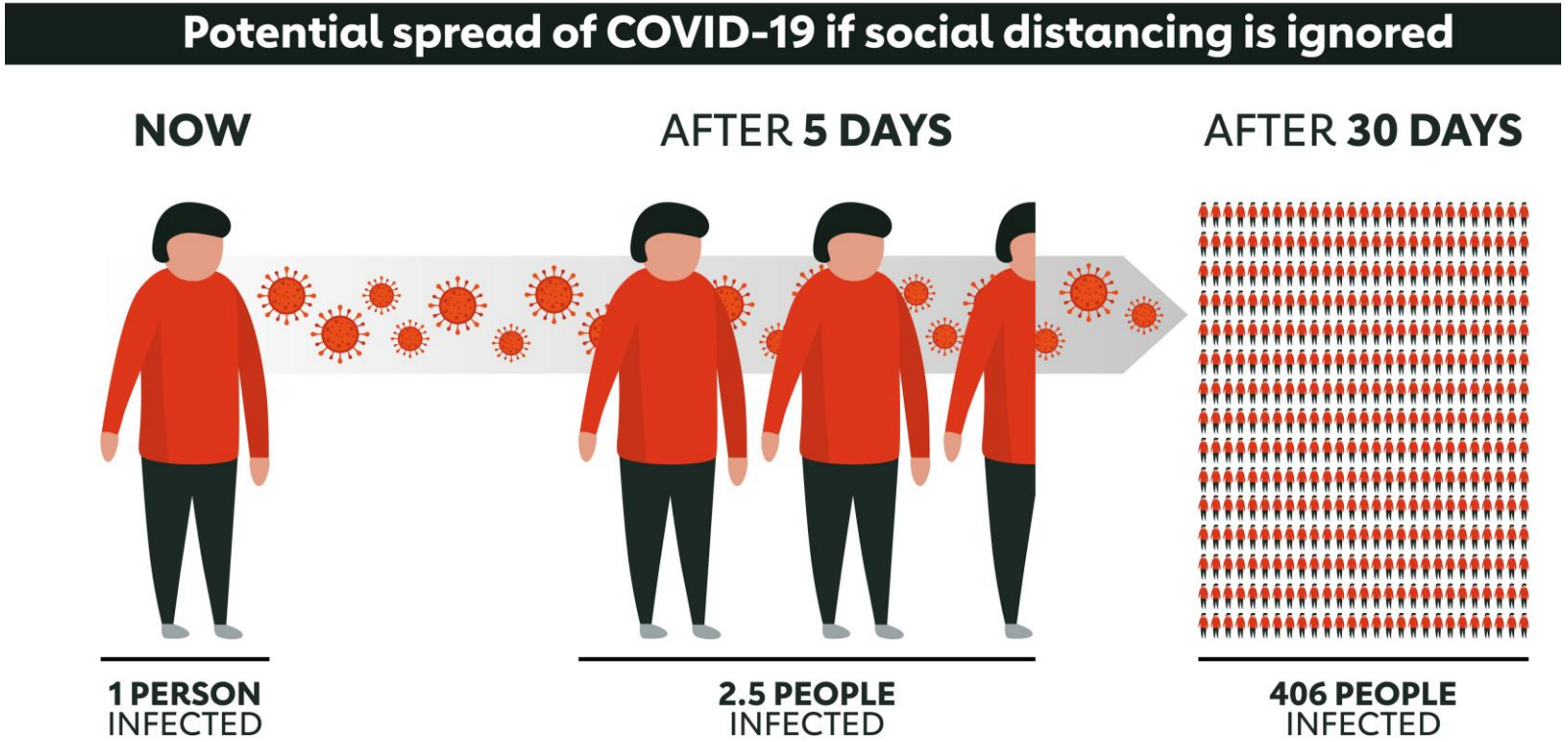
TABLE OF CONTENT

INTRODUCTION

To limit the spread of an infectious disease, for instance, Covid-19, is to practice social distancing





The objective is to reduce transmission, delaying the epidemic peak, reducing the size of the epidemic peak, and spreading cases over a longer time to relieve pressure on the healthcare system.

Methods of Social Distancing - Cancellation of events which involve large numbers of people gathering together, such as

- Closure of Community Facilities
- Closure of non-essential workplaces
- Closure of schools - Closure of colleges and universities
- Self-Shielding
- Individuals limit face-to-face contacts
- Individuals avoid public places
- Individuals avoid public transport

OBJECTIVES

1. Detect humans in the video frame.

2. Calculates the distance between every human detected in the frame.

3. Shows how many people are at High, Low and not at risk.

4. Provide sound Alert for people at high risk to maintain safe social distancing.

METHODOLOGY

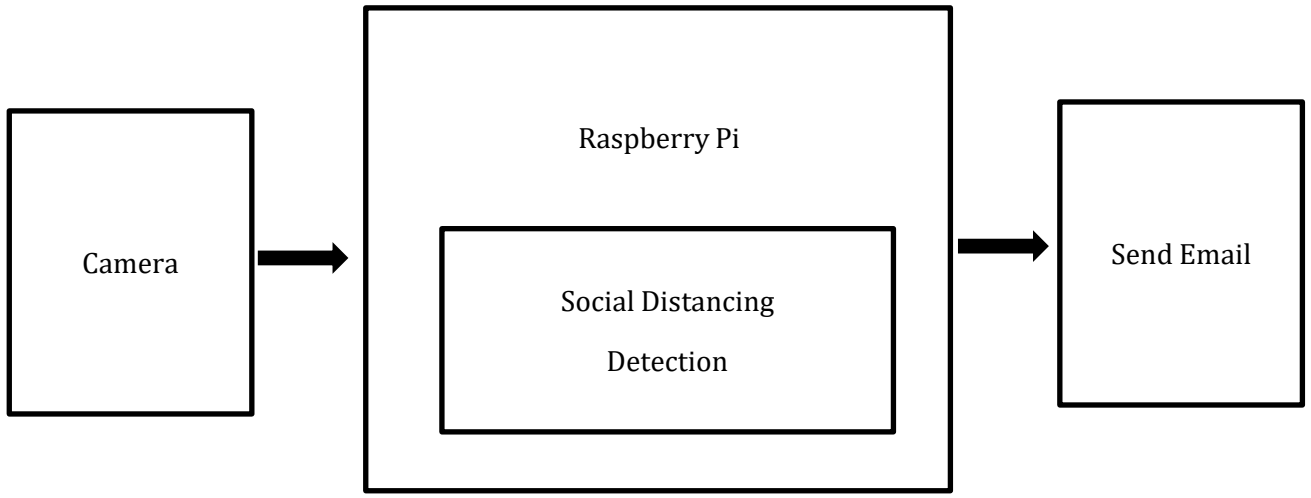


Fig : Block Diagram of Proposed System

The proposed system focuses on how to identify the person on image/video stream whether the social distancing is maintained or not with the help of computer vision and deep learning algorithm by using the OpenCV, YOLO V3.

REQUIREMENTS OF THE SYSTEM

SOFTWARE REQUIREMENTS

1) Raspbian OS
2) Python
3) OpenCV
4) Yolov3

HARDWARE REQUIREMENTS

1) Raspberry Pi 4B
2) Camera
3) 16GB SD Card

ADVANTAGES OF THE SYSTEM

1) Reassuring Employees

Most of employee's not wanting to return to the office until the workplace is made safe, having social distancing detection in the workplace is a great way of reassuring staff that the workplace has been made safe for their benefit.

2) Utilising Space

With the detection software we will have the ability to see which areas gain the most traction and are the offices 'hotspots. From this data we will then be able to put the most relevant safety measures in place.

3) Monitoring & Measuring

The technology isn't just for the office, for example, at a factory where employees are very close to each other, the software can be integrated into their security camera systems. Allowing them to monitor the working environment and highlight people whose distancing is below the minimum acceptable distance.

4) Queue Monitoring

For retail, healthcare and industries where queuing is avoidable, queue monitoring can be integrated into your cameras. The cameras will then have the ability to monitor and detect whether people are abiding by the social distancing guidelines. The solution can also be set up to work with automated barriers and digital signage for real-time notifications and health and safety information.

APPLICATIONS OF THE SYSTEM

- Airports
- Hospitals
- Offices
- Manufacturing Plants
- Retail Shops
- Metro Stations
- Public Libraries
- Schools
- Religious Places

EXPECTED OUTCOME

- The proposed system will be able to detect humans in the video frame.
- Calculates the distance between the persons in the video frame.
- Highlight the High, Medium and Low risk of people using bounding box.
- Email the Image of the people at High Risk by indicating the failure of social distancing to the remote-control room.

This system works effectively and efficiently in identifying the social distancing between the people and generating the alert that can be handled and monitored.

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THANK YOU SO MUCH