# A Project Report

on

## COVID-19 Social Distance Monitoring System Using YOLO

Submitted in partial fulfilment of the requirements for the award of degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE & ENGINEERING

by

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**Department of Computer Science and Engineering BVRIT HYDERABAD College of Engineering for Women**

(NBA Accredited EEE, ECE, CSE, IT B.Tech. Courses, Accredited by NAAC with „A‟ Grade)

(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)

Bachupally, Hyderabad – 500090

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CERTIFICATE

This is to certify that the project work report entitled “**COVID-19 Social Distance Monitoring System Using YOLO**” is a bonafide work carried out by **Ms. A. Geetha (17WH1A0508), Ms. P. Raghavarshini (17WH1A0528), Ms. A. Swathi (17WH1A0546)**

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**BVRIT HYDERABAD College of Engineering for Women, Bachupally, Hyderabad**, affiliated to Jawaharlal Nehru Technological University Hyderabad, Hyderabad under my guidance and supervision.

The results embodied in the project work have not been submitted to any other University or Institute for the award of any degree or diploma.

Internal Guide Head of the Department

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# DECLARATION

We hereby declare that the work presented in this project work entitled **“COVID-19 Social Distance Monitoring System Using YOLO”** submitted towards completion of Project work in IV Year of B.Tech of CSE at **BVRIT HYDERABAD College of Engineering for Women,** Hyderabad is an authentic record of our original work carried out under the guidance of **Ms. D Swapna, Associate Professor, Department of Computer Science and Engineering.**

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# TABLE OF CONTENTS

|  |  |  |
| --- | --- | --- |
| **S.No.**  1. | **Topic**  Abstract  List of Figures Introduction | **Page No.**  i ii 1 |
|  | 1.1 Objectives | 1 |
|  | 1.2 Methodology | 1 |
|  | 1.2.1 Dataset | 1 |
|  | 1.2.2 YOLO model | 2 |
|  | 1.2.3 Deep Neural Network | 4 |
|  | 1.2.4 Determine Person Location | 6 |
|  | 1.2.5 Non-Maxima Suppression for Object Detection | 7 |
|  | 1.3 Organization of Project | 8 |
| 2. | Theoretical Analysis of the proposed project | 9 |
|  | 2.1 Requirements Gathering | 9 |
|  | 2.1.1 Software Requirements | 9 |
|  | 2.1.2 Hardware Requirements | 9 |
|  | 2.2 Technologies Description | 9 |
| 3. | Design | 18 |
|  | 3.1 Introduction | 18 |
|  | 3.2 Architecture Diagram | 18 |
|  | 3.3 UML Diagrams | 24 |
|  | 3.3.1 Use Case Diagram | 24 |
|  | 3.3.2 Sequence Diagram | 25 |
|  | 3.3.3 Class Diagram | 26 |

1. Implementation 28
   1. Coding 28
   2. Testing 31
      1. Testing Strategies 32
   3. Test Cases 34
   4. Input Screenshots 35
   5. Output Screenshots 37
2. Conclusion and Future Scope 39
3. References 40

# ABSTRACT

The ongoing COVID-19 corona virus outbreak has caused a global disaster with its deadly spreading. Due to the absence of effective remedial agents and the shortage of immunizations against the virus, population vulnerability increases. In the current situation, even though vaccines are available, still there are many cases rising day by day; therefore, social distancing is thought to be an adequate precaution (norm) against the spread of the pandemic virus. The risks of virus spread can be minimized by avoiding physical contact among people. The purpose of this work is, therefore, to provide a deep learning platform for social distance tracking using an overhead perspective. The framework uses the YOLOv3 object recognition paradigm to identify humans in video sequences. The detection model identifies people using detected bounding box information. Using the Euclidean distance, the detected bounding box centroid’s pairwise distances of people are determined. To estimate social distance violations between people, we used an approximation of physical distance to pixel and set a threshold. A violation threshold is established to evaluate whether or not the distance value breaches the minimum social distance threshold. In addition, a tracking algorithm is used to detect individuals in video sequences such that the person who violates/ crosses the social distance threshold is also being tracked.