

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi - 590014



A PHASE 2 PROJECT REPORT

On

“COVID-19 Face Mask Detection and Face Recognition”

Submitted in partial fulfillment of the requirements for the *VIII Semester*

Bachelor of Engineering

In

Computer Science and Engineering

By

MD MIZAN FAROOQUI (1VK17CS032)

PRAJWAL S (1VK17CS039)

ROUSHAN RAJA (1VK17CS047)

SUDHANVA SHRIVALLABHA PANGARI (1VK17CS061)

Under the Guidance of

Dr. VIDYA A

Professor and Head of the Dept. CSE,

VKIT &

Ms. POORVITHA HR

Asst. professor, Dept. of CSE, VKIT



Estd. 1997

VIVEKANANDA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Kumbalagodu, Bengaluru-560074

2020-2021

VIVEKANANDA INSTITUTE OF TECHNOLOGY

Kumbalagodu, Bangalore-560074

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



Estd. 1997

CERTIFICATE

This is to Certify that the Project Work Phase II entitled “Covid-19 Face Mask Detection and Face Recognition” carried out by Md Mizan farooqui (1VK17CS032), Prajwal S (1VK17CS039), Roushan Raja (1VK17CS047) and Sudhanva Shrivallabha Pangari (1VK17CS061) the bonafide students of Vivekananda Institute of Technology have satisfactorily completed the Project Work Phase II prescribed for the Project Work Phase II (17CSP85) in 8th semester by the Visvesvaraya Technological University, Belagavi during the year 2020-2021. The Project Work Phase II report has been approved as it satisfies the academic requirements in respect of Project Work prescribed for the said degree.

Guide

Ms. Poorvitha HR
Asst. Professor
Dept. CSE, VKIT

HOD

Dr. Vidya A
Professor and Head
Dept. CSE, VKIT

Principal

Dr. D V Chandrashekar
Principal
VKIT, Bengaluru

EXTERNAL

Name of the Examiners

Signature with date

1.

2.

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of any task would be incomplete without the mention of people who made it possible because “Success is the abstract of hard work and perseverance, but steadfast of is encouraging guidance”. So, we acknowledge all those whose guidance and encouragement served as a beacon light and crowned our efforts with success.

We whole heartedly express our sincere thanks to our honorable Principal **Dr. D V Chandrashekar**, Vivekananda Institute of Technology for the encouragement and support.

We wish to express our deep-felt gratitude to our beloved HOD **Dr. Vidya A**, Professor and Head, Dept. of Computer Science and Engineering for providing us with all the facilities necessary for making this a great success.

We are grateful to our beloved guide **Ms. Poorvitha H R**, Asst. Professor, Dept. of Computer Science and Engineering for her valuable guidance and support.

Ultimately, we express our deep sense of gratitude to the institution in particular and everybody who have supported us in accomplishing this project work.

MD MIZAN FAROOQUI (1VK17CS032)

PRAJWAL S (1VK17CS039)

ROUSHAN RAJA (1VK17CS047)

SUDHANVA SHRIVALLABHA PANGARI (1VK17CS061)

ABSTRACT

The unprecedented outbreak of the 2019 novel coronavirus, termed as COVID-19 by the World Health Organization (WHO), has placed numerous governments around the world in a precarious position. The impact of the COVID-19 outbreak, earlier witnessed by the citizens of China alone, has now become a matter of grave concern for virtually every country in the world. The scarcity of resources to endure the COVID-19 outbreak combined with the fear of overburdened healthcare systems has forced a majority of these countries into a state of partial or complete lockdown. The number of laboratories confirmed coronavirus cases has been increasing at an alarming rate throughout the world, with reportedly more than 2.2 million confirmed cases as on 20 April 2020. So, wearing face mask is very important, in this we are using ultrasonic sensor and IR temperature sensor to body temperature of the person Face Detection has evolved as a very popular problem in Image processing and Computer Vision. Many new algorithms are being devised using convolutional architectures to make the algorithm as accurate as possible. These convolutional architectures have made it possible to extract even the pixel details. We aim to design a binary face classifier which can detect any face present in the frame irrespective of its alignment. We present a method to generate accurate face segmentation masks from any arbitrary size input image. Beginning from the RGB image of any size, the method uses Predefined Training Weights of VGG – 16 Architecture for feature extraction. Experiments were performed on Multi Parsing Human Dataset obtaining mean pixel level accuracy of 93.884 % for the segmented face masks.

CONTENTS

CHAPTER NO	DESCRIPTION	PAGE NO
1	INTRODUCTION	1-7
2	LITERATURE REVIEW	8-14
3	SYSTEM REQUIREMENTS	15-18
4	SYSTEM ANALYSIS	19-20
5	SYSTEM DESIGN	21-27
6	METHODOLOGY	28-32
	CONCLUSION	33
	REFERENCES	34-35

LIST OF FIGURES

FIGURE NO	DESCRIPTION	PAGE NO
1.1	OVERVIEW OF MOBILENETV2 ARCHITECTURE	2
1.2	ACCURACY GRAPH OF MOBILENETV2	3
5.1	DATA FLOW DIAGRAM	23
5.2	SYSTEM ARCHITECTURE	25
5.3	USE CASE DIAGRAM OF FACEMASK DETECTION	26
5.4	HOME PAGE	27
5.5	FACE MASK DETECTION	27
5.6	LIST OF PEOPLE DETECTED WITHOUT MASK	27
6.1	FLOW CHART OF FACE MASK DETECTION	28
6.2	IMAGES CONTAINING WITH AND WITHOUT MASK	29
6.3	IMAGE OF FACE MASK DETECTION	30
6.4	IMAGE OF MULTIPLE FACES NOT WEARING MASK	30
6.5	AN EXAMPLE OF A COVID-19 FACE MASK	31
6.6	ARTIFICIAL SET OF COVID-19 FACE MASK IMAGES	32