VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"DESIGN AND DEVELOPMENT OF SVM MODEL TO DETECT THE EFFECT OF DIABETES"

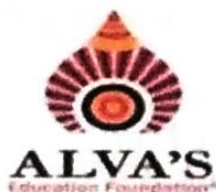Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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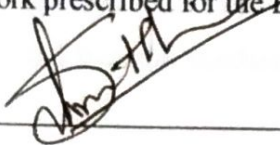### DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled **"DESIGN AND DEVELOPMENT OF SVM MODEL TO DETECT THE EFFECT OF DIABETES"** is a bona fide work carried out by

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in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2020–2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

There are many people who are suffering from blindness because of diabetic retinopathy globally, an estimation shows about 40 to 45 million people are totally blind,135 million have low vision and 314 million have some kind of visual impairment. The incidence and demographics of blindness vary greatly in different parts of the world. In most industrialized countries, approximately 0.4% of the population is blind while in developing countries it rises to 1%. It is estimated by the World Health Organization(WHO) that 87% of the world's blind live in developing countries.

Diabetes is known as the mother of all diseases and it directly affects the retina which is the main part of the eye so it is called as diabetic retinopathy. Diabetic retinopathy is the vision threatening complications, about 25,000 people are blind in US due to diabetic retinopathy. It is estimated that diabetic retinopathy is responsible for 5% of world's blindness cases. Early diagnosis of diabetic retinopathy and providing proper treatment can prevent blindness. The main sign of diabetic retinopathy are exudates. If exudates are detected, then diabetic retinopathy can be detected at an early stage.

The project describes about the decision tree algorithm where RGB image is taken as an input. The green component is extracted from the RGB image. In the green component of the image, median filter of 3×3 mask size is applied. After masking pre-processed image is obtained. Exudates and micro aneurysms are detected and using this data they are classified into normal, mild, moderate and severe DR. Then the noise is removed by erosion and dilation and then the exudates are detected.