VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELAGAVI

A PROJECT REPORT ON

"ANOMALY DETECTION IN REAL TIME VIDEO SURVEILLANCE SYSTEM"

Submitted in partial fulfillment for the award of Degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING

By

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CERTIFICATE

This is to certify that the project entitled **"ANOMALY DETECTION IN REAL TIME VIDEO SURVEILLANCE SYSTEM"** has been successfully completed by

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ABSTRACT

Traditional video surveillance systems often struggle to accurately detect and classify anomalies or unusual activities in real-time. Manual monitoring is labor intensive and prone to errors, while rule-based algorithms may not capture complex patterns effectively. Therefore, there is a need for an automated anomaly detection system that can reliably identify suspicious behavior within surveillance videos The project utilizes a deep learning approach, employing the ResNet50 architecture for image classification and activity recognition. Data preprocessing involves resizing and labeling images, followed by fine-tuning the model using data augmentation techniques. In video prediction, frames are preprocessed and passed through the trained model, with predicted labels smoothed using a rolling average. Text-to-speech is employed for audio feedback. The developed system achieved high accuracy in classifying activities within surveillance videos, with an average accuracy of over 90% on the test dataset. Real-time prediction capabilities were successfully implemented, allowing for the timely detection of anomalies. Additionally, the incorporation of text-to-speech and email alerting feedback proved effective in providing auditory alerts for detected activities, enhancing situational awareness. In conclusion, "ANOMALY DETECTION IN REAL TIME VIDEO SURVEILLANCE SYSTEM System using deep Learning" presents a comprehensive approach to enhance surveillance systems" capabilities. By leveraging deep learning and real-time prediction, the project offers improved accuracy in activity recognition and timely anomaly detection. With its ability to provide audio feedback and email alerting and efficient video processing, it holds promise for enhancing security and safety across diverse environments.