VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELAGAVI

A PROJECT REPORT ON

"PILL DETECTION WITH MEDICINAL DRUG IDENTIFICATION SYSTEM"

Submitted in partial fulfillment for the award of the Degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING

By

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CERTIFICATE

This is to certify that the project entitled **"PILL DETECTION WITH MEDICINAL DRUG IDENTIFICATION SYSTEM"** has been completed by

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the bonafide students of the **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the Year 2023–24. 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 regarding the project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Medication errors, including the misidentification of pills, pose significant risks to patient safety and healthcare outcomes. This project aims to develop an intelligent medicinal drug identification system that leverages machine learning (ML) to accurately detect and identify pills. By integrating image processing and advanced ML algorithms, the system can recognize various pills based on their physical characteristics such as shape, color, size, and imprints. The proposed system utilizes a dataset of commonly prescribed medications, with images representing different pills. Using computer vision techniques, the system processes these images to extract key features, forming a comprehensive set of descriptors. These descriptors serve as input for machine learning models that are trained to categorize and identify different types of pills. We implement a user-friendly interface that allows healthcare professionals and patients to upload images of pills for identification. The system compares the uploaded image with the trained model to provide a likely match, along with additional information such as drug name, dosage, and common usage. This helps in ensuring the correct medication is dispensed or consumed, thereby reducing the risk of errors. The project's outcomes include increased accuracy in pill identification, a reduction in medication errors, and enhanced patient safety. Furthermore, the system has potential applications in pharmacies, hospitals, and other healthcare settings where accurate drug identification is crucial. In conclusion, the medicinal drug identification system offers a technology-driven solution to a significant healthcare challenge, with the potential to improve safety, streamline healthcare processes, and contribute to better patient outcomes. We discuss future research directions, such as expanding the pill dataset and incorporating additional identification methods, to further enhance the system's reliability and versatility.