VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama" Belagavi – 590 018

PROJECT REPORT ON

" AUTOMOTIVE INVENTORY MANAGEMENT SYSTEM USING ROBOT "

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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CERTIFICATE

Certified that the project work entitled "AUTOMOTIVE INVENTORY MANAGEMENT SYSTEM USING ROBOT" *is a bona fide work carried out by*

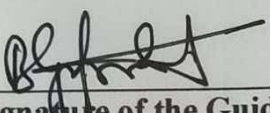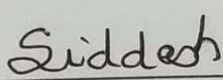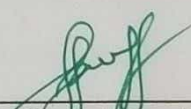|	
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in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2023–2024. It is certified that all corrections/suggestions 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

This automotive robot intended to improve inventory management across a variety of settings by decreasing labour costs and increasing efficiency. While the initial concept was inspired by challenges faced in a college library, the proposed solution is adaptable to various inventory management scenarios. Traditional inventory management systems encounter issues with accurately updating item availability, leading to inefficiencies. In response, this research presents an innovative inventory management robot capable of swiftly returning items to their designated locations. Unlike systems relying on complex Simultaneous Localization and Mapping (SLAM) techniques, our approach leverages a known environment, reducing system complexity and enhancing flexibility The robot navigates the inventory area and returns items to their appropriate shelves by using Radio Frequency Identification (RFID) tags to identify the location of each item on the shelf. This implementation is designed to be versatile, requiring minimal modifications to its operational environment while significantly improving inventory management processes.