## VISVESVARAYA TECHNOLOGICAL UNIVERSITY

**“Jnana Sangama” Belagavi – 590 018**

****

## PROJECT REPORT

## ON

**“Smart Floor Cleaning System”**

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

**BACHELOR OF ENGINEERING IN**

**ELECTRONICS & COMMUNICATION ENGINEERING**

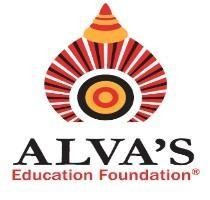
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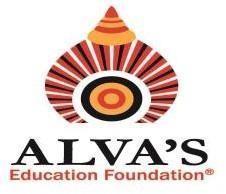
Department of E&C Engineering



**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING ALVA’S INSTITUTE OF ENGINEERING & TECHNOLOGY**

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ALVA’S INSTITUTE OF ENGINEERING & TECHNOLOGY

(Unit of Alva’s Education Foundation (R), Moodbidri)

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## CERTIFICATE

*Certified that the project work entitled “***SMART FLOOR CLEANING SYSTEM** *“ is a bonafide 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 2024–2025. 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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1…………………………….............. ....................................

2…………………………….............. ....................................

**ABSTRACT**

This project is about making a smart floor-cleaning robot that helps clean homes and offices with less human effort. The robot uses an Arduino UNO as the main controller and includes parts like a motor driver (L298N), Bluetooth module (HC-05), servo motors, a water pump, and sensors. It can sweep, mop, and spray water on the floor, making it useful for both dry and wet cleaning. The robot is controlled by a mobile app using Bluetooth, so users can easily move it and start or stop cleaning from their phone. Servo motors help in lifting and lowering the cleaning arms, and the water pump sprays water before mopping the surface. IR and ultrasonic sensors help the robot detect walls, objects, or other obstacles so that it can change direction and continue cleaning. The robot is powered by a rechargeable battery, which makes it easy to move around without wires. It is designed to be simple, low-cost, and suitable for all floor types in homes or offices. The robot also helps save time and energy, especially for busy people. The project shows how basic electronic parts and programming can be used together to build a smart and helpful cleaning robot. In the future, this robot can be improved with more features

like automatic charging or scheduling.

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**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| **DC** | **DIRECT CURRENT** |
| AC | Alternating Current |
| IR | Infrared Sensor |
| PWM | Pulse Width Modulation |
| LED | Light Emiting Diode |
| LCD | Liquid Crystal Display |
| BLDC | Brushless Direct Current |
| HC-05 | Host Control - 05 |
| ESP 32 | Espressif Systems Processor 32 Bit |
| UART | Universal Asynchronous Receiver Transmitter |
| IC | Integrated Circuit |
| I2C | Inter Integrated Circuit |
| SPI | Serial Peripheral Interface |
| VCC | Voltage Common Collector |
| GND | Ground |
| SRAM | Static Random Access Memory |
| IDE | Integrated Development Environment |
| SLAM | Simultaneous Localization & Mapping |
| AI | Artificial Intelligence |

INTRODUCTION

LITERATURE SURVEY

PROPOSED SYSTEM

HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE IMPLEMENTATION

SOFTWARE IMPLEMENTATION

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