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

Submitted By

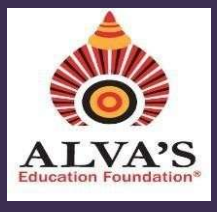
Name	USN
Shivakumar K.V	4AL21EC079
Prasanna Kumar B I	4AL21EC064
Shashank Viresh Shetti	4AL21EC078
Shashank Swami	4AL21EC077

Under the Guidance of

Mr. Sudhakara H.M

Associate Professor

Department of E&C Engineering



DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

2024-2025

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

Submitted By

Name	USN
Shivakumar K.V	4AL21EC079
Prasanna Kumar B.I	4AL21EC064
Shashank Viresh Shetti	4AL21EC078
Shashank Swami	4AL21EC077

Under the Guidance of
Mr. Sudhakara H.M
Associate Professor
Department of E&C Engineering

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

2024-2025

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
(Unit of Alva's Education Foundation (R), Moodbidri)
Shobhavana Campus, MIJAR-574225, Moodbidri, D.K., Karnataka
Affiliated to VTU, Belagavi & Approved by AICTE New Delhi. Recognized by Govt. of Karnataka.
Accredited by NAAC with 'A+' & NBA (ECE & CSE)

CERTIFICATE

*Certified that the project work entitled "***SMART FLOOR CLEANING SYSTEM** *" is a bonafide work carried out by*

Name	USN
Shivakumar K.V	**4AL21EC079**
Prasanna Kumar B.I	**4AL21EC064**
Shashank Viresh Shetti	**4AL21EC078**
Shashank Swami	**4AL21EC077**

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.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Mr. Sudhakara H.M	**Dr. Dattathreya**	**Dr. Peter Fernandes**

EXTERNAL VIVA

Name of the Examiners	Signature with date
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.

ACKNOWLEDGEMENT

The project of any research work depends so much on: the quality of education received the quality of teachers, research resources and enabling and encouraging environment. Studying in **Alva's Institute of Engineering and Technology**, Mijar provides all these above-mentioned facilities which have made possible the successful outcome of this research work.

Firstly, our gratitude goes to our guide, **Mr.Sudhakara H.M**, Associate Professor, Department of Electronics and Communication, AIET, who is our source of encouragement and motivation throughout this project. Without her valuable guidance, this work would never have been a successful one.

We would like to express our gratitude to our Project coordinator, **Dr. Ganesh V N**. Associate Professor, Department of Electronics and Communication, AIET, for his consistent guidance, regular source of encouragement and assistance throughout this project.

We would like to express our sincere gratitude to our Head of the Department of Electronics & Communication Engineering**, Dr. Dattathreya** for his guidance and inspiration.

We would like to thank our Principal **Dr. Peter Fernandes** for providing all the facilities and a proper environment to work in the college campus.

We are indebted to Management of **Alva's Education Foundation, Moodbidri** for providing an environment which helped us in completing our project.

1. Shivakumar K.V 4AL21EC079
2. Prasanna Kumar B.I 4AL21EC035
2. Shashank Viresh Shetti 4AL21EC078
4. Shashank Swami 4AL21EC077

TABLE OF CONTENTS

LIST OF FIGURES

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