MAKE Clouds
DESIGN.DEVELOP.DELIVER.

Madiwala, Venkatapura,
HSR Layout 5th Sector,
Bangaluru, Karnataka 560068
Phone: +91 8300830154
Email: info@makeclouds.com

Date: 20/01/2026

Proposal for Workshop on ESP-Based Robotics Systems

Workshop Title

Workshop on ESP Boards, Motor Control, Encoders, Mobile App Integration, and Robotic Applications

Proposed By

Makeclouds

Proposed For

Jeppiaar Engineering College

Workshop Overview

Makeclouds proposes to conduct a hands-on workshop for the students of Jeppiaar Engineering College, focusing on practical learning in ESP-based embedded systems and robotics applications. The workshop is designed to provide real-time exposure to hardware, programming, and application development used in modern robotic and industrial systems.

The program will include theoretical concepts, live demonstrations, and hands-on practice, enabling students to build and understand a complete robotic system.

Workshop Objectives

- To introduce students of Jeppiaar Engineering College to ESP series boards (ESP32/ESP8266)
- To provide hands-on training in motor control and motor driver interfacing
- To explain the use of encoders for motion tracking and control
- To demonstrate mobile app–based robot control

- To showcase real-world applications such as mapping, monitoring, and industry automation
- To align academic learning with industry requirements

Workshop Content & Schedule

.

Session 1: Introduction to ESP Boards

- Overview of ESP boards and features
- Pin configuration and hardware architecture
- Programming basics and development setup

Session 2: Motor Control & Motor Drivers

- DC motors and motor driver operation
- Speed and direction control techniques
- Hands-on motor interfacing with ESP boards

Session 3: Encoders & Motion Tracking

- Encoder working principle
- Speed, distance, and position measurement
- Practical encoder interfacing

Session 4: Mobile App Integration

- Mobile app–based robot control concepts
- Wi-Fi / Bluetooth communication using ESP
- Live control of robot through mobile application

Session 5: Applications – Mapping & Monitoring

- Introduction to mapping techniques
- Monitoring applications for industrial and campus environments
- Use cases: industry monitoring, smart systems, autonomous robots

Session 6: System Integration & Demonstration

- Integrating motors, encoders, and mobile control
- Complete robotic system demonstration
- Interaction, discussion, and Q&A

Applications Covered

- Autonomous and semi-autonomous robotic systems
- Mapping and navigation technologies
- Industrial monitoring and inspection systems
- Smart campus and smart industry solutions
- Mobile-controlled robotic platforms

Student Benefits

- Hands-on experience with real-time hardware and software
- Practical understanding of embedded systems and robotics
- Industry-oriented exposure for mini and final-year projects
- Improved technical and problem-solving skills
- Guidance for career development and higher studies

Internship & Project Collaboration

Makeclouds is interested in exploring internship opportunities, mini-projects, and final-year project collaborations with the students and faculty of Jeppiaar Engineering College. Selected students may be offered internships and project mentorship based on performance and interest.

Workshop Outcomes

- At the end of the workshop, students of Jeppiaar Engineering College will be able to:
- Understand ESP board architecture and programming
- Control motors and read encoder data
- Operate robotic systems using mobile applications
- Understand real-world robotic and industrial applications