VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

An ASSIGNMENT REPORT ON

Wireless Android Robot Control via Bluetooth

Submitted as Microcontroller And Embedded System

assignment work

By

AKSHATHA	**4AL21CS014**
DEEKSHA S.SHET	**4AL21CS035**
GAYATRI C B	**4AL21CS042**
K P MADHAVI	**4AL21CS057**
ARCHANA G. H	**4AL21CS401**

Under the Guidance of

Mr. Abhijith L Kotian

Assistant Professor

ALVA'S
Education Foundation

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

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ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225

KARNATAKA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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This is to certify that, assignment work for the subject **"Microcontroller and Embedded System (21CS43)"** has been successfully completed and report submitted by AKASHATA (4AL21CS014), during the academic year 2022–2023. It is certified that all corrections/suggestions indicatedpresentation session have been incorporated in the report & scored 9 Marks outof 10 and deposited in the departmental library.

Mr. Abhijith L Kotian
Assistant Professor

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225

KARNATAKA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Mr. Abhijith L Kotian
Assistant Professor

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225

KARNATAKA

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Mr. Abhijith L Kotian
Assistant Professor

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225

KARNATAKA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Mr. Abhijith L Kotian
Assistant Professor

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225

KARNATAKA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that, assignment work for the subject **"Microcontroller and Embedded System (21CS43)"** has been successfully completed and report submitted by ARCHANA G.HUBLIKAR (4AL22CS401), during the academic year 2022–2023. It is certified that all corrections/suggestions indicated presentation session have been incorporated in the report & scored 9 Marks out of 10 and deposited in the departmental library.

Mr. Abhijith L Kotian
Assistant Professor

Chapter 1

Wireless Android Robot Control via Bluetooth

Abstract

This report presents the creation of an Android-controlled robot using Bluetooth technology. The project focuses on establishing a wireless link between an Android device and a robot for remote control. The robot comprises a chassis, microcontroller, Bluetooth module, and motor driver circuit. The Android app, developed in Android Studio, allows users to control the robot's movements via Bluetooth. The microcontroller interprets app commands and controls the motors, enabling accurate motion. Challenges addressed include Bluetooth pairing and minimizing latency. The project demonstrates successful integration of mobile technology and robotics, highlighting its potential in various applications.

1.1 Introduction

In the ever-evolving landscape of robotics and mobile technology, the fusion of these two domains has led to remarkable advancements, opening avenues for innovative applications. One such promising endeavor is the development of an Android-controlled robot using Bluetooth technology. This project revolves around the idea of seamless remote control, where an Android device serves as the interface for directing the movements of a robotic platform.

The concept of remote-controlled robots has captivated human imagination for decades, finding utility in diverse sectors such as education, entertainment, industrial automation, and beyond. This project embraces this concept by capitalizing on the ubiquity and versatility of smartphones, particularly those powered by the Android operating system, and the convenience of Bluetooth communication.

The project's fundamental premise lies in the harmonious interaction between hardware and software. A robot chassis, equipped with the essential components for locomotion, takes center stage. A microcontroller unit acts as the brain, interpreting instructions from the Android app and translating them into motor control signals. Through a Bluetooth module, the Android app establishes a wireless communication link with the robot, enabling real-time command transmission.

This report delves into the intricate details of crafting an Android-controlled robot using Bluetooth. It encompasses the hardware setup, software development process, Bluetooth communication mechanism, challenges faced, and future prospects. By exploring this dynamic integration of mobile technology and robotics, we gain insights into the potential transformative impact of such collaborations in shaping the way we interact with and harness robotic systems.