A Report

on

"Android with IOT"

Field Training/Internship/Industrial Training

(BTES211P/BTCOF408/BTCOF609)

SUBMITTED BY

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(VII Semester)

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Department of Computer Engineering

(2022-23)

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Pipri, Arvi Road, Wardha - 442001.

DEPARTMENT OF COMPUTER ENGINEERING

Certificate

This is to certify that Field Training/Internship/Industrial Training entitled

"Android With IOT"

has been completed by

Miss.Apurva Nimkar
(PRN No. 2046491245005)

of VII Semester, Computer Engineering of academic year 2022-23 in partial fulfillment of Field Training/Internship/Industrial Training (BTES211P/ BTCOF408/ BTCOF609) course as prescribed by the Dr. Babasaheb Ambedkar Technological University, Lonere.

Internship Coordinator

Prof. Sheetal Kale
Head of the Department

Place: BIT, Wardha
Date: November 10, 2022

Declaration

I, the undersigned declare that this report is personally prepared and compiled by me and that the contents within this report have not been duplicated or published anywhere or submitted to any other university for any degree/diploma program by student or any other person. I have personally compiled it based on the training I had with CompanyName iBase Technology Amaravati

Report Title: Android with IOT
Student Name:Apurva Nimkar

Signature: _____

Date: November 10, 2022
Place: BIT, Wardha

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Abstract

Now a day's peoples like smart work in every field like our home, industries, bank, medical, school and colleges so for the smart work with IoT device and android application are the good choice for improving our work in our related fields. Today's people widely use the IoT devices for make their work easy and smart because IoT devices able to connect easily to our hand held mobile phone and we can handled or monitor our job profile in all over the world. For ex. Using IoT with android application we can take information about weather like temperature, humidity, and the level of obnoxious gases in air, second example is we can handled or monitor our home without our presence, we can on/off lights through wifi connection by using Iot device with android app.

Keywords- ***IOT Devices*****,** ***android applications***

Chapter 1

INTRODUCTION

1.1 Introduction

With the coming of IoT based technologies the overall industrial sector is tractable to undergo a fundamental and essential change alike to the industrial revolution. this technology helps for Online Monitoring solutions of environmental pollution using Internet of Things techniques with android applications help us to get the parameter values such as pH, temperature, humidity and gases level in environment, etc. Using IoT sensors including unique technology. This paper introduces the IoT device with android application are the better solution today for make our future better however the entire research most of the industries, companies use the IoT with android applications because everyone using the smart phone today as well as easy to carry every were without any difficulty

1.2 Objectives

The main objectives of the projects are as follows:

- Better Flexibility-mobile applications provide you greater flexibility
- Real time notification-mobile applications offer features like device base features and functionalities as well as real-time notification for sending updates to user.
- No location dependency-using smart devices iot based devices can be controlled from anywhere in the world.
- Provide convenience-iot powered mobile apps provide more convenience as compared to tablet and laptop.

Chapter 2

NATURE OF INTERNSHIP

2.1 About the Company

By the end of this internship, feel comfortable creating basic programs, working with data, and solving real-world problems in android. gain a strong foundation for more advanced learning in the field, and develop skills to help advance for career. and Create a mobile app based switch control using a Raspberry Pi, Android Things, Switch Relays and a mobile app to control Switch system.

2.2 Overview of Internship Modules

- Module 1 - Basics of Android And IOT
- Module 2 - A brief overview of types of function in android and their uses
- Module 3 - An overview of arduino and their pin , uses and related all the hardware device like sensors , bredboard and others.
- Module 4 - An overview of connection arduino,implimentation of Android app (Final project)

2.3 Details of the Internship

In his Intership we built an Android application and we are be able to control the on board LED of the Arduino with our own android application using Bluetooth.we made our Android application having an image of a light bulb and a button.

Table 2.1: Summary of Internship

SN	Internship Name	Company Name	Stipend	HR/Mentor Name	Mentor Email ID
1	Android with IOT	IBASE Technology	00	Mr.Nakul Deshmukh	ibaseamaravati@gmail.com

Table 2.2: Summary of Internship (continued)

SN	Internship Name	Start Date	End Date	Duration (in weeks)
1	Android with IOT	18 oct 2021	18nov 2021	4week

Chapter 3

SKILLS ACQUIRED DURING THE INTERNSHIP

3.1 Skill 1

Java is one of the powerful general-purpose programming languages, created in 1995 by Sun Microsystems Android heavily relies on the Java programming language all the SDKs required to build for android applications use the standard libraries of Java. If one is coming from a traditional programming background like Java is easy to learn. With Java, if you are aware of object-oriented programming principles, creating applications for android will be much simpler than iOS app development.

3.2 Skill 2

The Internet of things (IoT) describes physical objects with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks. Arduino is an open-source prototyping platform in electronics based on easy-to-use hardware and software. Subtly speaking, Arduino is a microcontroller based prototyping board which can be used in developing digital devices that can read inputs like finger on a button, touch on a screen, light on a sensor etc. and turning it in to output like switching on an LED, rotating a motor, playing songs through a speaker etc. .

Chapter 4

IMPLEMENTATION & OUTCOMES OF INTERNSHIP/COURSE(S)

4.1 Work Done

Android with IOT.

4.1.1 Week 1

In First week were teaches about the installation of Android Studio, introduction of Java language and begins by exploring some of the different data types such as integers, real numbers, and strings. Continue with the module then teaches about the Introduction of Internet of Things describes physical objects with sensors, processing ability, software, and other technologies that connect and exchange data with other devices.

Tasks

1. **Task 1**:Installation of Android Studio
2. **Task 2**:Learned Concepts of Java.

4.1.2 Week 2

This module begins a journey into important concepts in Android i.e What's RelativeLayout? What's TextView? What's EditText? and What's Button?Working with the MainActivity.java file. A View is a simple building block of a user interface. It is a small rectangular box that can be TextView, EditText, or even a button. Study all Components of Android.

Tasks

1. **Task 1**:Created A Simple Registration Form using Layouts,Button,TextView etc.
2. **Task 2**:Created A calculator using all Components of android.

4.1.3 Week 3

In this Week,Studied about Introduction of Raspberry Pi and Arduino with its all Comonents and Features.The two most popular among them are: Arduino and Raspberry Pi. Arduino is based on the ATmega family and has a relatively simple design and software structure. Raspberry Pi, basically is a single-board computer. Both of them have a CPU which executes the instructions, timers, memory and I/O pins.

Tasks

1. **Task 1**:Studied about all Components and Pins of Raspberry Pi and Arduino.

4.1.4 Week 4

In the week we Focus on to Created Project Android With IOT.In this experiment,we first control an LED using an Arduino board and then from a Raspberry Pi.we Build our own IoT Based Android Application to control an LED on Arduino using Bluetooth.

Tasks

1. **Task 1**:Project:Build our own IoT Based Android Application to control an LED on Arduino using Bluetooth.

4.2 Screenshots

Figure 4.1: Image

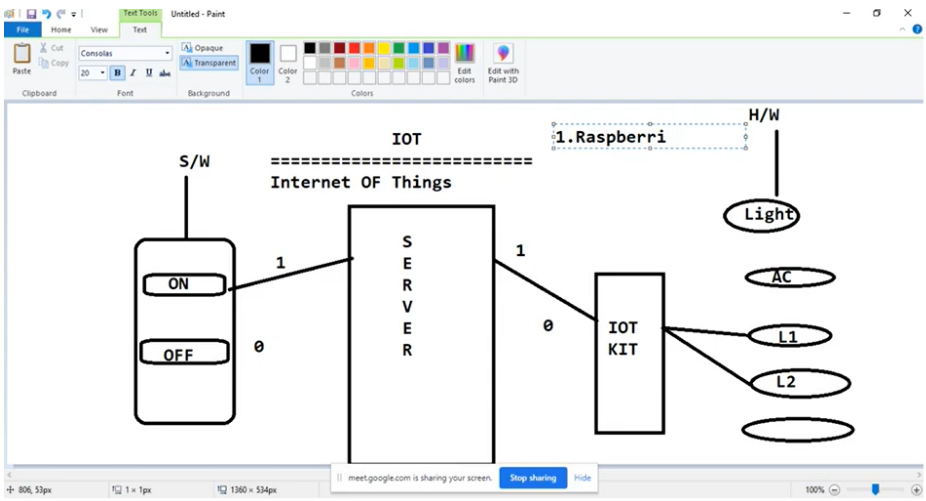


Figure 4.2: Image

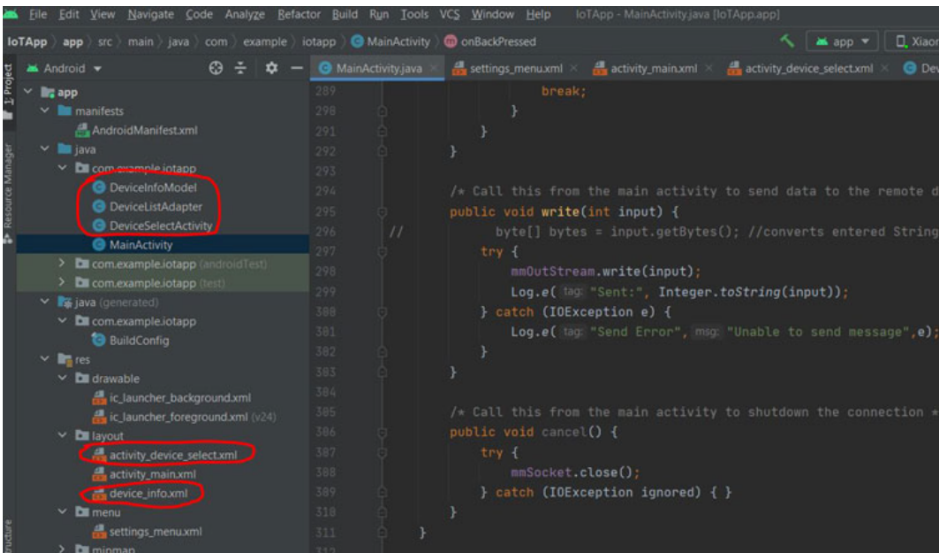


Figure 4.3: Image

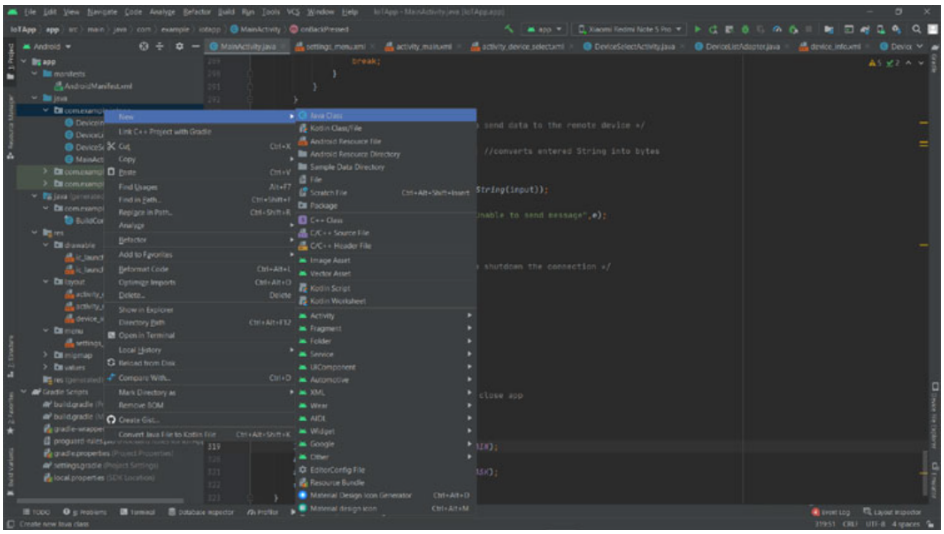
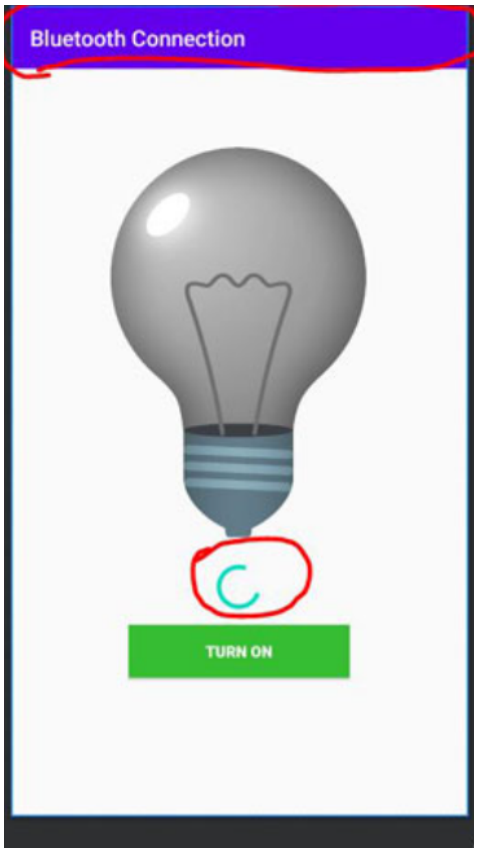


Figure 4.4: Image

Figure 4.5: Image



Chapter 5

CONCLUSION

5.1 Conclusion

Now a day's human beings like smart work in the above research we see the internet of things with android applications give the smart result for industries, medical, colleges, etc. anybody work without a trace. The Internet of things is a good platform including new technologies which is helping to improve the quality of smart work and save time not only working people but also local people who are using smartphones. [3].

5.1.1 Learning Outcomes

- Android Things and how it works.
- IoT development and prototyping board.
- Getting started Android IoT app: Connecting RGB Led to Android Things.
- How to use Android Thing to control GPIO Pins PeripheralManagerService.
- How to develop an Android IoT app UI.

5.2 Future Plan

The IoT is an advance technology of interconnected computation an electronic devices with digitization techniques which is useful for dumb instruments, human beings or animals that are provided with new identities and the efficiency to transmit data over a network without requiring humans help or computer interaction.[3].

References

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[2] DAVINDER PARKASH, TWINKLE KUNDU and PREET KAUR,"THE RFID TECHNOLOGY AND ITS APPLICATIONS: A REVIEW", Haryana College of Technology and Management, Ambala Road, Kaithal 136027, India *ö*. [

[3] Charles, Wauconda; Christopher Wojtowicz, Mt. Prospect; Kenneth F. Wolfinger, Skokie, all of III" ROOM TEMPERATURE SENSOR AND THERMOSTAT CONTROL DEVICE

Appendix A

Certificates

Figure A.1: Certificate of the Internship

Ref No. : iBaseEs/internship2021/250 **Date : 10/12/2021**

TO WHOM IT MAY CONCERN

This is to be certify that **Ms.Apurva Narendra Nimkar** has successfully completed **Android with IOT** internship program at iBase Electrosoft LLP from **18th October 2021 to 18th November2021**. During the period of her internship program with us she has found sincere, hardworking, technically sound, result oriented and inquisitive.

We wish her all the best for her bright future and every success in life.

Executive Director
iBase Electrosoft LLP.