REPORT ACTIVITY
(ELC ACTIVITY- IOT BASED SYSTEM)

GROUP-ENC3

SAGAR	102115049
DIVYA	102115057
PRABHNOOR	102115059
DILPAL	102115061
TARUN	102115067
AASHMEET	102115069

THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING, THAPAR INSTITUTE OF ENGINEERING AND TECHNOLOGY, PATIALA, INDIA

INTRODUCTION

Experiential Learning Centre (ELC), ECED, TIET has conducted its activity for second year UG students of ECE and ENC on IoT based systems. The mandate of the activity were understanding the concepts of Internet of Things, implement basic IoT applications on embedded platforms, interfacing of different sensors with embedded systems.In the activity we focused on the deployment of Internet of Things technology using Blank.Through the utilisation of Blynk's intuitive platform, we learned how to seamlessly connect hardware devices, such as sensors tothe digital world.The activity provided us with invaluable practical skills and knowledge, empowering us to contribute to the rapidly advancing field of IoT.

THEORY OF IoT

The Internet of Things (IoT) describes the network of physical objects—“things”—that are embedded with sensors, software, and other technologies for the purposeof connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to sophisticated industrial tools. It is a revolutionary concept that refers to the network of interconnected physical devices, vehicles, appliances, and other objects embedded with sensors, software, and network connectivity, enabling them to collect and exchange data. The core idea behind IoT is tocreate a seamless integration of the physical and digital worlds, where objects can communicate and interact witheach other and with humans. As the IoT ecosystem continues to expand and evolve, it holds the promise oftransforming industries and society as a whole. By enabling seamless connectivity, intelligent automation, and data-driven insights, IoT has the potential to create a more interconnected and intelligent world, revolutionizing how we live, work, and interact with our environment.

Components Used

- Arduino board- Arduino is an open-source electronics platform based on easy-to-use hardware and software.

- Breadboard- A breadboard (sometimes called a plugblock) is used for building temporary circuits. It isuseful to designers because it allows components to be removed and replaced easily.

- LEDs- A light-emitting diode (LED) is a semiconductordevice that emits light when current flows through it.

- Connecting wires- A wires is a strand of metal. Wires are used for establishing electrical conductivity between two devices of an electrical circuit.

- Resistors- It is defined as a passive electrical component with two terminals that are used for eitherlimiting or regulating the flow of electric current in electrical circuits

- USB cable- USB cable assemblies are some of the most popular cable types available, used mostly to connect computers to peripheral devices such as cameras, camcorders, printers, scanners, and more.

PROCESS

- Deployment of IoT using Blink

- **Blynk App** - allows to you create amazing interfaces foryour projects using various widgets we provide.
- **Blynk Server** - responsible for all the communicationsbetween the smartphone and hardware. You can use Blynk Cloud or run your private Blynk server locally. It'sopen-source, could easily handle thousands of devicesand can even be launched on a Raspberry Pi.
- **Blynk Libraries** - for all the popular hardware platforms - enable communication with the server and process all the incoming and out-coming commands.

- Lets start with Blynk

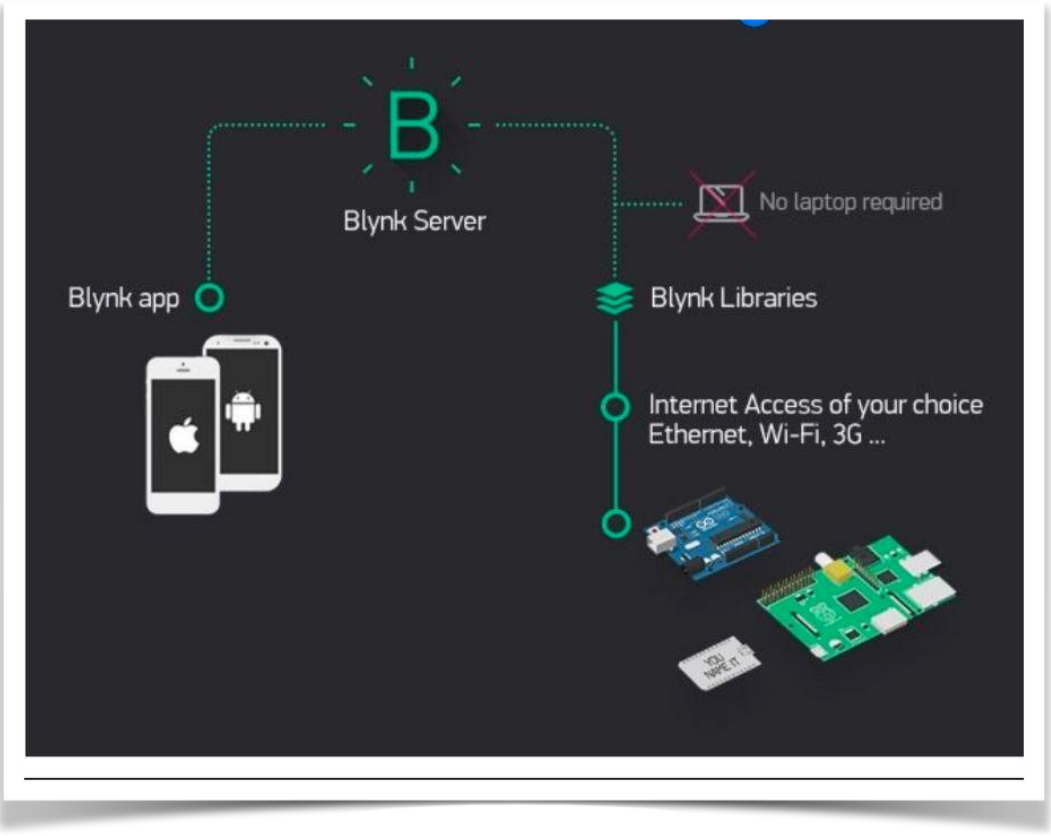
- Download Blynk Application from Google Play store
- Create a Blynk App

1. For new users Sign Up and old users just Log in.
2. Create a New Project and Choose Arduino board inthe Choose device drop-down and then click create.Create a Blynk App.
3. Now you will receive an email with the AuthenticationToken. You need to place it in the Arduino Code. Before that, we will finish the App Creation.
4. Now tap on the button from the Homepage to configure it. Choose the Output Pin D0 and Select theMode as Switch. Then go back. Configure the remaining buttons in the same way.

Web socketing

- Open Command window as an Admin
- Run a batch file Blynk-server.
- Select COM port (connected to Arduino)
- Now you are ready for IoT deployment.

- Now make the connections on Arduino board using pins 4,5,6,7 and connecting other elements such as resistor and leds as well on board .



IMAGES OF OUTPUT