**Program : 6**

1.1 AIM

The aim of this Experiment is to set-up a local server using the ESP8266 WiFi module.

MODULE 1 - HARDWARE

Hardware refers to any physical components/particulars of a system containing ICs, electronics,

sensors, and circuit boards. Without hardware, an IoT system cannot exist, and the software

developed won't be able to run.

2.1 COMPONENTS REQUIRED

● Node MCU ESP8266

● USB Data cable

**2.2 ANNEXURE**

**A. Node MCU ESP8266:**

The Node MCU ESP8266 is a popular WiFi development board that is based on the ESP8266 WiFi module. It features a microcontroller, flash memory, and a built-in WiFi module, which makes it ideal for creating IoT devices that require wireless connectivity. The Node MCU ESP8266 is programmable using the Arduino IDE, Lua scripting language, or other programming languages such as Micro Python.

2.3 WIRING : Connect the ESP8266 Node MCU with the system using USB type B data cable

**MODULE 2 - SOFTWARE**

Software is a generic term to refer to the scripts and programs that run on a microprocessor or

microcontroller and execute specific tasks.

**2.1 GET START WITH ARDUINO IDE**

To set up the Arduino IDE for using ESP8266, follow these steps:

● Download and install the latest version of the Arduino IDE from the official website:

https://www.arduino.cc/en/software.

● Open the Arduino IDE and go to File > Preferences.

● In the Preferences window, find the "Additional Boards Manager URLs" field and add the

following URL: http://arduino.esp8266.com/stable/package\_esp8266com\_index.json

● Click "OK" to close the Preferences window.

● Next, go to Tools > Board > Boards Manager. In the Boards Manager, search for

"esp8266" and install the "esp8266 by ESP8266 Community" package.

● Once the installation is complete, go back to Tools > Board and select "NodeMCU 1.0

(ESP-12E Module)" or the appropriate board that you are using.

● Finally, connect your ESP8266 board to your computer using a USB cable and select the

appropriate port from the Tools > Port menu.

You are now ready to start programming your ESP8266 board using the Arduino IDE!

2.2 PROGRAM ESP8266 Code:

#include <ESP8266WiFi.h>

#include <ESP8266WebServer.h>

#include "index.h"

ESP8266WebServer myserver(80);

const char\* ssid = "Computercentre";

const char\* pass = "password";

void setup() {

  Serial.begin(9600);

  Serial.println("Connecting to WiFi network");

  WiFi.begin(ssid,pass);

  while(WiFi.status() != WL\_CONNECTED){

    Serial.print(".");

    delay(200);

  }

  Serial.println();

  Serial.println("Connected to the network");

  Serial.print("IP: ");

  Serial.println(WiFi.localIP());

  myserver.on("/",handle);

  myserver.begin();

}

void handle(){

  String home = homepage;

  myserver.send(200, "text/html", home);

}

void loop() {

  myserver.handleClient();

}

const char homepage[] PROGMEM = R"=====(

<html>

  <head>

    <title>SVCET- CSE </title>

    <style>

      body {

        font-family: Arial, sans-serif;

        background: linear-gradient(#341757,#1d053b,#100221,#100221);

        margin: 0;

        padding: 0;

      }

      #navbar {

        position: absolute;

        top: 0;

        width: 100%;

        flex-direction: row;

        align-items: center;

        justify-content: center;

        display: flex;

      }

      #navbar a{

        float: left;

        color: #fff;

        text-align: center;

        padding: 5px 16px;

        margin: 20px 20px;

        text-decoration: none;

        font-size: 17px;

        border: 2px solid white;

        background-color: transparent;

        border-radius: 15px;

        transition: background-color 0.5s ease;

        transition:  color 0.5s ease;

      }

      #navbar a:hover{

        color: #341757;

        background: white;

        transition: background 0.5s ease;

        transition:  color 0.5s ease;

      }

      .container {

        max-width: 1100px;

        margin: 0 auto;

        height: 100vh;

      }

      h1 {

        font-size: 4em;

        color: #fff;

        animation: zoom-animation 1s infinite;

        text-align: center;

        margin-top: 250px;

      }

      @keyframes zoom-animation {

      0% {

          transform: scale(1);

      }

      50% {

          transform: scale(1.1);

         }

      100% {

          transform: scale(1);

         }

      }

      p {

        font-size: 1.5em;

        color: whitesmoke;

        text-align: center;

        margin: 0px 20px;

        margin-top: 100px;

      }

    </style>

  </head>

  <body>

    <div id="navbar">

      <a href="#">Home</a>

      <a href="#">About</a>

      <a href="#">Products</a>

      <a href="#">Services</a>

      <a href="#">Events</a>

      <a href="#">Contact</a>

</div>

    <div class="container">

      <h1>SRI VENKATESWARA COLLEGE OF ENGINEERING</h1>

      <p>We provide economical, basic, premium variants of COE IoT lab with facilities of more than sensors to read the different parameters. We have vast experience on most popularly used wireless technologies like LoRaWAN, WiFi, BLE, GSM etc. IoT COE lab provides more than 50 different sensors, various development kits to read the data and do real time IoT projects.</p>

    </div>

  </body>

</html>

)=====";

OUTPUT :



