



Bangabandhu Sheikh Mujibur Rahman Digital University, Bangladesh

Faculty of Cyber Physical System

Dept. of Internet of Things and Robotics Engineering (IRE)

Course Title: Real life in IoT Lab

Course Code: IOT 4316

Lab Report-01

Submitted to-

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Name of the Experiment: Send DHT11 Data to MySQL Server Using NodeMCU.

Introduction: In Internet of Things (IoT), connecting sensors and devices to the internet and extracting valuable data has become a common requirement. One such popular sensor is the DHT11, which is widely used for measuring temperature and humidity. To store and analyze the data collected from the DHT11 sensor, a database management system like MySQL is often employed.

In this lab, we will explore how to send data from a DHT11 sensor to a MySQL server using the NodeMCU development board. NodeMCU is an open-source firmware and development board based on the ESP8266 Wi-Fi module, which enables easy integration of microcontrollers with the internet.

Elements:

- 1.ESP8266 Wi-Fi module.
- 2.DHT11.
- 3.B type cable.
- 4.Connecting wires.

Connection Table:

No	ESP8266 Pin	DHT21 pin
1	vin	5v
2	GND	GND
3	D5	Data

Circuit Diagram:

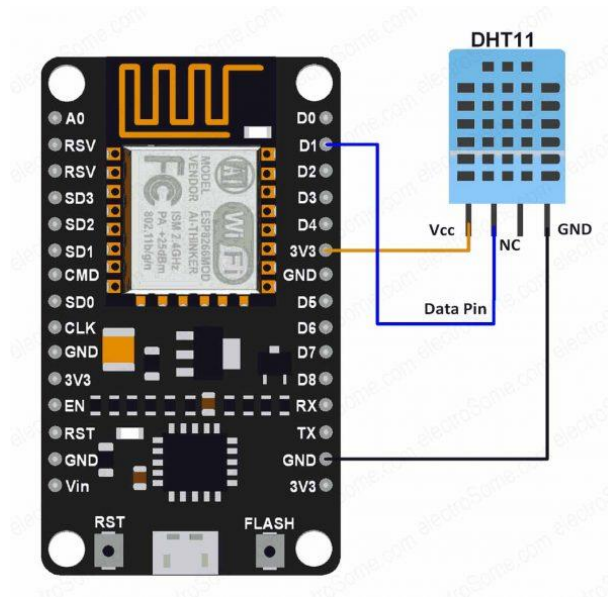


Fig:Circuit diagram of Sending DHT11 Data to MySQL Server Using NodeMCU.

Working Procedure:

To send DHT11 data to a MySQL server using NodeMCU, you need to follow these steps:

1.Setting up the Hardware:

We connect the data pin of the DHT11 sensor to digital pin D5 of the NodeMCU board.

2.Setting up the Software:

Arduino IDE allows us to write and upload code to the NodeMCU board. Select the appropriate board and port for our NodeMCU board in the Arduino IDE and writing the code. Include the necessary libraries for the DHT sensor, Wi-Fi connectivity, and MySQL connection.

3. Writing the code:

In this step we will Include the necessary libraries for the DHT sensor, Wi-Fi connectivity, and MySQL connection.

4. Uploading and Testing:

Connect the NodeMCU board to our computer via USB. Select the appropriate board and port in the Arduino IDE. Upload the code to the NodeMCU board. Open the Serial Monitor to view the debug output. Verify that the DHT11 sensor readings are being fetched and sent to the MySQL server successfully. Check the MySQL database to ensure that the data is being stored correctly.

Result:

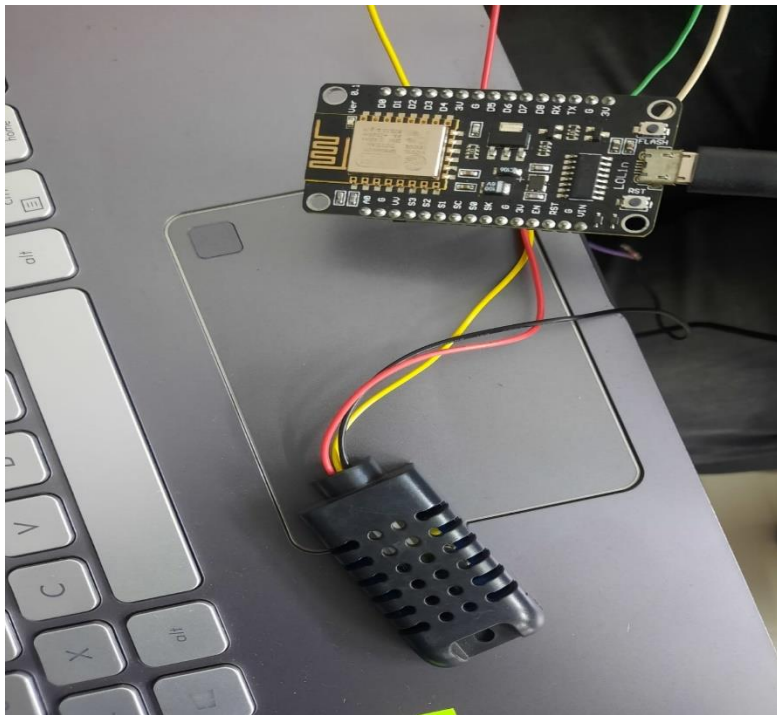
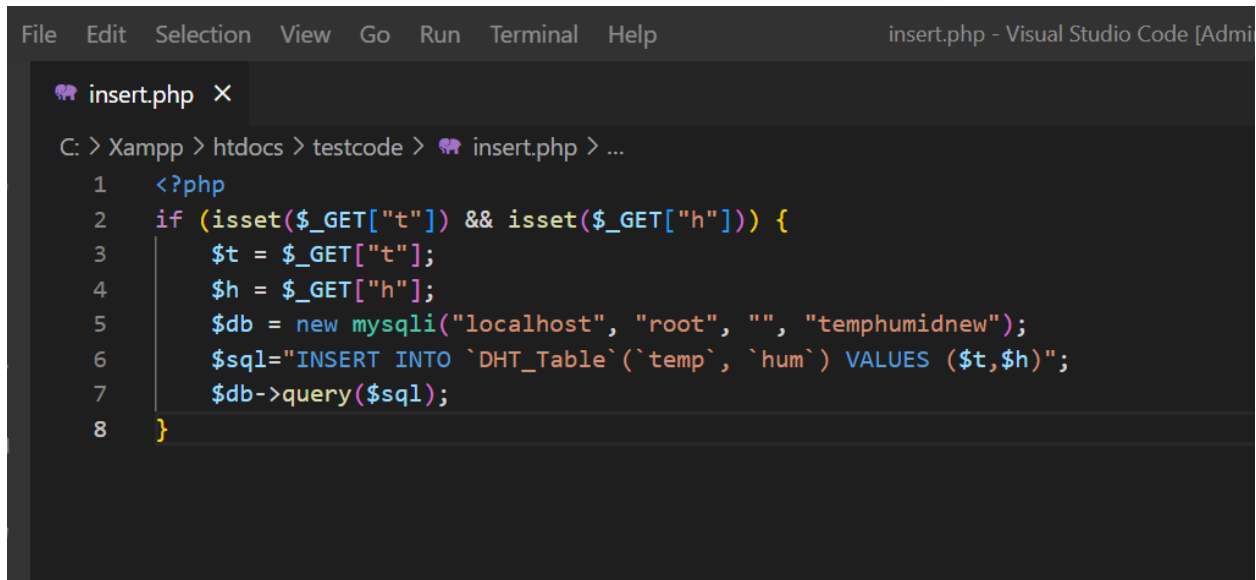


Fig: Implementational view of Sending DHT11 Data to MySQL Server Using NodeMCU





```
File Edit Selection View Go Run Terminal Help insert.php - Visual Studio Code [Admi]

insert.php X

C: > Xampp > htdocs > testcode > insert.php > ...
1  <?php
2  if (isset($_GET["t"]) && isset($_GET["h"])) {
3      $t = $_GET["t"];
4      $h = $_GET["h"];
5      $db = new mysqli("localhost", "root", "", "temphumidnew");
6      $sql="INSERT INTO `DHT_Table`(`temp`, `hum`) VALUES ($t,$h)";
7      $db->query($sql);
8  }
```

Fig: Php code

Conclusion:

In this lab, we explored the process of sending DHT11 sensor data to a MySQL server using the NodeMCU development board. By combining the power of the DHT sensor library, Wi-Fi connectivity, and the MySQL Connector library, we were able to establish a connection between the DHT11 sensor and the MySQL server, enabling us to store temperature and humidity readings in a database. This integration between the DHT11 sensor and MySQL server opens a world of possibilities for monitoring and analyzing environmental conditions. We can build applications and dashboards that retrieve data from the MySQL server, allowing us to visualize and make informed decisions based on the collected data.

–End of the Report–