

Remote Web Monitoring of Metering Equipment over the Internet

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Abstract: Internet of Things represents a general concept for the ability of network devices to sense and collect data from the world around us, and then share that data across the Internet where it can be processed and utilized for various interesting purposes. The Internet of Things (IoT) describes a network of physical objects that connect to each other through the internet. Objects or 'things' can transfer information wirelessly without requiring human interaction. A 'thing' can be any object that can be assigned an IP address and provided with the ability to transfer data over a network. Some also use the term industrial Internet interchangeably with IoT. This refers primarily to commercial applications of IoT technology in the world of manufacturing. The Internet of Things is not limited to industrial applications, however.

Keywords: Internet of things, remote web monitoring, Atmega 328, ESP 8266 (Wi-Fi module), Flow sensor, OLED, Arduino UNO, PHP web server.

1. INTRODUCTION

Internet of Things represents a general concept for the ability of network devices to sense and collect data from the world around us, and then share that data across the Internet where it can be processed and utilized for various interesting purposes.

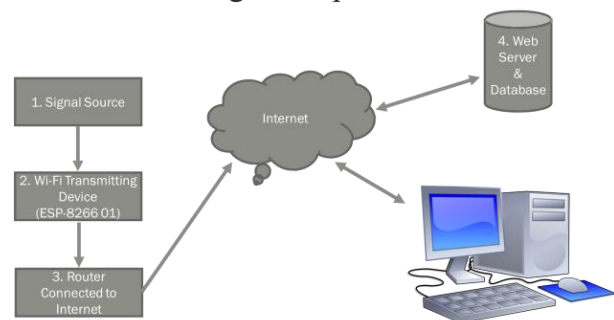
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Some future consumer applications envisioned for IoT sound like science fiction, but some of the more practical and realistic sounding possibilities for the technology include:

- Receiving warnings on your phone or wearable device when IoT networks detect some physical danger is detected nearby
- Self-parking automobiles
- Automatic ordering of groceries and other home supplies
- Automatic tracking of exercise habits and other day-to-day personal activity including goal tracking and regular progress reports
- Location tracking for individual pieces of manufacturing inventory.

2. IMPLEMENTATION

Working Principle

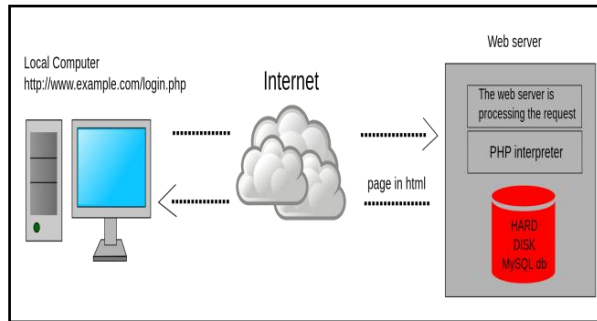


Proposed Algorithm

- Step 1: Connect ESP 8266 (Wi-Fi module) to desired network.
- Step 2: Pour fluid through flow sensor.
- Step 3: Pulses are generated and are sent to Atmega 328 micro-controller unit.
- Step 4: Check whether pulses are converted to readings on OLED.
- Step 5: Press the interrupt button to send the readings (data) to ESP 8266 which will send the data to web server.
- Step 6: Check whether the data is logged in the web server.



3. DESIGN OF THE SYSTEM



1. Here we use PHP scripting language to receive the information sent by the WiFi Transmitting device.
2. Data is stored in database on the Web Server.
3. We use PHP to visually represent and analyze the consumption

Advantages:

- Remote monitoring gets easy.
- Easy data backup.
- Reduce human effort.
- Reduces the cost and complexity.

In future, you could automate stuff in home to make faster decision, communicate instantly, monitor the stuff which is most important.

4. SYSTEM SPECIFICATION

Planning before any activity is very much important. And if it is planned nicely, then success is guaranteed. Project Management System has six major modules of Admin, Manage Application, Test Management, Process Management, Manage Comment, Reports. We analyzed the overall complexity of each of these modules and it was found that the project will required approximately 6 months completing, so we planned accordingly.

We decided to follow the SDLC i.e. Software Development Life Cycle while planning various phases of our project. This method consists of following activities:

1. Determination of system requirements
2. System Analysis
3. Design of system
4. Development of software
5. System Testing
6. Implementation and Evaluation

We have planned our project into following ways:

1. During first two month of our project, we have studied the various problems.
2. During third month of our project, we have start to Analysis of problem.
3. During four and fifth month, we have start Designing and implementation of our project.

5. CONCLUSION

1. Hence, IoT is a very helpful technology used to ease physical efforts put by one.
2. This is a very cost effective method to implement Smart metering.
3. Internet of things will impact every aspect of our life.
4. We can use this technique to transmit physical device information to the web for remote monitoring and control.

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REFERENCES

- [1] A. Sachdeva, S. Chand, "EMC evaluation and analysis of electronic energy meter", IEEE 1999.
- [2] Karen Rose, Scott Eldridge and Lyman Chapin, "The Internet of things An Overview Understanding the Issues and Challenges of a More Connected World", Internet Society, October 2015 .
- [3] Ashna.K and Sudhish N George, "GSM based automatic energy meter reading system" IEEE 2013
- [4] Google.com
- [5] <https://www.hackster.io/rayburne/esp8266-01-using-arduino-ide-67a124>
- [6] <https://www.hackster.io/rayburne/esp8266-01-web-server-696587>
- [7] <http://www.instructables.com/id/Arduino-Esp8266-Post-Data-to-Website/>