

# Industrial Parameter Monitoring through IOT by using Sensors

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## Abstract

In the modern industrial, most of the machinery is made automated due to lack of labor and time to market. In the automation machinery the values are set and left off for further process. To check the standard of the product and to increase the quality of the product, monitoring is required. So to increase the quality of the product, the specification standards have to be monitored by the higher official in the firm frequently. So the environment of the product is sensed by the sensor and it is feed in to the local file server. The value can be checked by the specified person in the file server.

**Keywords:** *Internet of Things (IOT), Industrial monitoring, data accusation.*

## 1. Introduction

In the developing industry, automation is carried out by PLC and controllers. Every industry has to follow certain specification given by the product standard. If the products deviate from the specification it results in malfunction or loss. Due to full automation the person who is working near the machine has less knowledge. If there is a deviation he doesn't have awareness of the deviation which leads to fault in product.

To overcome this loss, the data and specification of current status is collected and uploaded in secure server. The supervisor or quality controller can access the data and values so he can control the outcome of the product. If the values are in secure server only the accessible person can check the values and change the specification.

IOT are growing very fast in industries and other domain since the availability of all local knowledge at a single point of access. If a detail of a particular environment is available at a single point, monitoring is made easier and everyone in the environment will have the

knowledge of the surroundings. In industries many automation machine are used for particular section of product or to finish whole product. The environment parameters like temperature, humidity, pressure etc, around the product determine the specification of the product. Hence IOT is required to keep update the environment parameter around the product frequently so that the quality of the product can be maintained nearly 100%.

## 2. Background Related Work

Applications of IoT are increasing. Uses of new technologies in IoT environment are increasing rapidly. It has been already developed in Industrial Wireless Sensor Network (WSN). A smart home is also one of the applications of IoT. Rapid growth in technologies and improvements in architecture comes out many problems that how to manage and control the whole system, Security at the server, security in smart homes, etc.[1]. The need of monitoring the water level of troughs is increasing. This is parallel with the growing of Wireless Sensor Network and Internet of Thing. By combining both approach, cattlemen can monitoring their troughs ubiquitous using their own personal device.[2]. Introducing Internet of Things (IOT) into the field of environmental protection puts forward a kind of real-time air pollution monitoring and forecasting system. By using IOT, this system can reduce the hardware cost into 1/10 as before. The system can be laid out in a large number in monitoring area to form monitoring sensor network. [3]

## 3. Implementation

### 3.1 Sensor Implementation

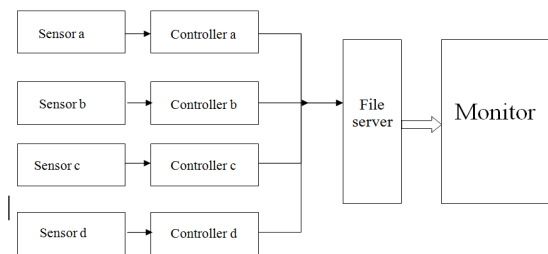


Fig. 1 System flow diagram

The sensor used is DHT11 which is a low cost and most efficient sensor. It can sense both humidity and temperature. The value is received by arduino through single data pin. The value is received as packet of both parameters at the same time. The temperature is received in lower bit and humidity is received in higher bit.

### 3.2 Sensor Control

The sensor values are received by arduino and the values are separated and converted. The temperature and humidity values are separated and saved in memory. The temperature value is converted into Kelvin standard so that it can be checked easily with the standards that are specified. The refresh time of the sensor is 26microsecs. Arduino can receive this data without missing any values.

### 3.3 File Server

Raspberry pi is used as the file server. The data from the arduino is frequently received and saved in file server. The person in the firm can access this file server to monitor the reading around the product where the sensor is placed. Raspberry pi and arduino are connected by I2C connection which is most efficient way to connect two or more arduino without overloading the processor in Raspberry pi. The board is connected to the local LAN to acts as the local server. The data are made available in server so that the official can access the server to check the data.

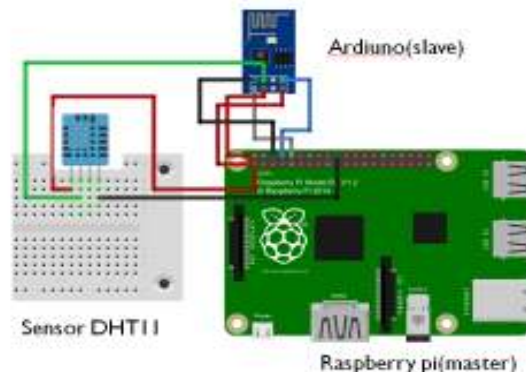


Fig. 2 Overall Connections

## 4. Conclusions

Hence, the data of the parameter around the product or the machine under process can be monitor and the data available at a single point of access. The person who need of the data can be access the file server where all the data are stored through a security process. The advantage of the project is the superior are aware of the surroundings in the local firm or the factory and easy to maintain the quality of the product at higher level. Furthermore this can be developed by making the received data undergo a process through which the changes are determine and the countermeasure are done automatically to maintain the specification standard in the product without external command. This will reduce the time taken to check and change the specification. Hence the product will be 100% sure and time to market will be achieved within less time.

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