

# IOT Based Analyzation of Press Machine in Automation Industry

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## ABSTRACT

They say that companies that do not understand the importance of Analyzation are less likely to survive in the modern economy. Your data is your most valuable asset. Data management is important because the data your organization create is a very valuable resource. The last thing you want to do is spend time and resources collecting data and business intelligence, only to lose or misplace that information. In that case, you would then have to spend time and resources again to get that same business intelligence you already had. However, only well prepared and analyzed data leads to process knowledge and finally, to process control and continuous improvement. Thus, a robust and efficient data analytics strategy is one of the most valuable concepts for the process industry.

**Keywords :** Internet of Things, ESP8266 Wi-Fi Module, Machine safety, Analyzation of press machine, Data management.

## I. INTRODUCTION

As automation becomes more widespread and manufacturing more complex factories will need to employ IOT. Self-learning technologies ultimately allow the companies forward-thinking enough to use them to reduce operational costs while maintaining the highest quality possible. However, an out-of-box solution is not always the best option. Limited flexibility and lower accuracy are the most significant obstacles most companies face.

Despite the advanced technology now available, there are still three key issues that adversely affect manufacturers of all types and sizes. They are data management, inventory, and gross margin. For

example, consider the use of data. The way data is gathered, analyzed, and understood can have a significant impact on the decisions made, inventory strategies that are established, and ultimately a firm's profitability.

## II. LITERATURE SURVEY

In paper [1] the author had done this project on microcontroller. Industrial Automation using sensing-based application. The system makes use of microcontroller and various sensors to control the industrial devices using Bluetooth

The AVR family microcontroller is used by our system for processing all user commands. For the connection to the internet and to receive the user commands a Wi-Fi modem is used. WIFI modem receives the commands which are sent through the internet. The received information is decoded by the WIFI modem and passed to the microcontroller. The microcontroller then takes necessary actions as per user's commands. The state of the system is displayed on the LCD display. Thus, the entire industry is automated using online GUI for easy industry automation

In paper [2] the author implemented this project on IOT. Internet of Things (IoT) is rapidly increasing technology. IoT is the network of physical objects or things embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. In this paper, we are developing a system which will automatically monitor the industrial applications and generate alerts/alarms or take intelligent decisions using concept of IoT. IoT has given us a promising way to build powerful industrial systems and applications by using wireless devices, Android, and sensors. A main contribution of this review paper is that it summarizes uses of IoT in industries with Artificial Intelligence to monitor and control the Industry.

In paper [3] the author implemented this project on IOT/GPRS. This project is not only an electronic gadget but rather a total framework that executes security measures for specialist who includes in working perilous machines. Happening of mischance while working these machines can prompt friend in need wounds like finish cutting or squeezing of arms. In this framework, we have executed our answer for metal sheet cutting or metal kicking the bucket processing plants. These industrial facilities utilize unsafe power squeeze machines. At some point laborers working these machines get into a mishap driving genuine wounds. Having security

instrument in power squeeze machines, this framework additionally helps production line

### III. METHODOLOGY

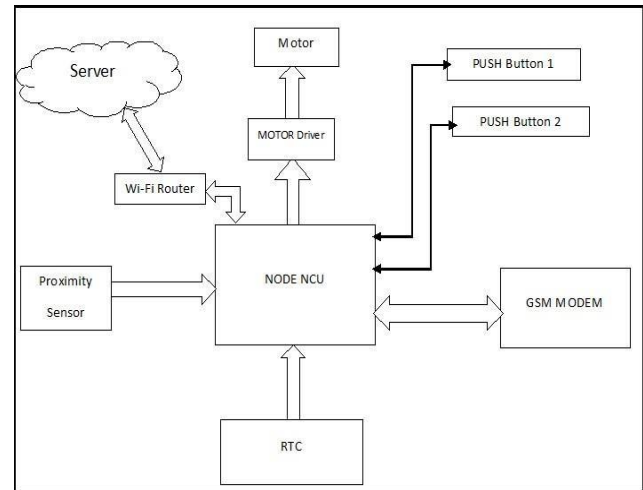


Figure-1 : Block Diagram of the System

#### A. ESP8266

Node MCU is an open source IoT platform. It includes firmware which runs on the ESP8266 Wi-Fi SoC from Express if Systems, and hardware which is based on the ESP-12 module. The term "Node MCU" by default refers to the firmware rather than the development kits. The firmware uses the Lua scripting language. The ESP8266 is a low-cost Wi-Fi microchip with full TCP/IP Stack and micro-controller capability. It is 32-bit microcontroller with 16 GPIO pins. It has WEP or WPA/WPA2 authentication or open networks.

#### B. DC Motor

As shown in fig two 100 rpm L-Type Single Shaft BO Motor is used here. BO (Battery Operated) light weight DC geared motor which gives good torque and rpm at lower voltages. This motor can run at approximately 100 rpm when driven by a single Li-Ion cell. Great for battery operated light weight robots. It can do reverse and forward directions the motor used to move the die in all direction, in our project we use one dc motor.

### C. Proximity Sensor

A proximity sensor is a sensor able to detect the presence of nearby objects without any physical contact. A proximity sensor often emits an electromagnetic field or a beam of electromagnetic radiation (infrared, for instance), and looks for changes in the field or return signal. The object being sensed is often referred to as the proximity sensor's target. Different proximity sensor targets demand different sensors. For example, a capacitive proximity sensor or photoelectric sensor might be suitable for a plastic target; an inductive proximity sensor always requires a metal target.

### D. Real Time Clock

A real time clock (RTC) is a computer clock (most often in the form of an integrated circuit) that keeps track of the current time. The term often refers to the devices in personal computers, servers and embedded systems, RTCs are present in any electronic device which needs to keep the accurate time.

### E. LCD Display

Liquid crystal display is the technology used for displays in notebook and other smaller computers. Like light emitting diode and gas-plasma technologies, LCD's allow displays to be much thinner than cathode ray tube technology.

### F. IOT

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. The definition of the Internet of Things has evolved due to the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems.

Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of Things.

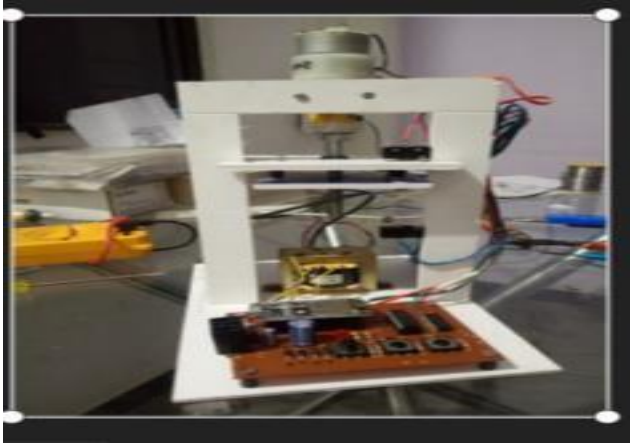
### G. GSM

A GSM module is a specific sort of modem which acknowledges a SIM card, and works over a membership to a versatile administrator, much the same as a cell phone. From the versatile administrator point of view, a GSM module looks simply like a cell phone. At the point then a GSM module is associated with a PC, this enables the PC to utilize the GSM module to impart over the portable system. While these GSM modules are most habitually used to give portable web availability, a considerable lot of them can likewise be utilized for sending and accepting SMS and MMS messages. In that GSM Module SIM900A Integrated Circuit is inbuilt

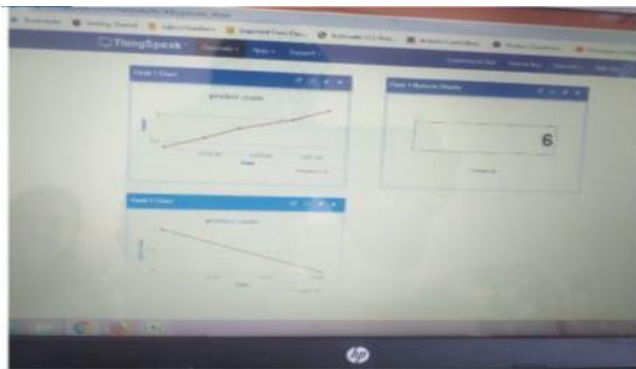
## IV. PERFORMANCE ANALYSIS

Initialize ESP8266 Wi-Fi module, wait NodeMCU to connect with Wi-Fi. Wait for shift button to be pressed. Send shift start time to cloud data base. RTC module used to time set. Wait for start button to be pressed. Start press action using motor. If button is pressed product counter is increment. Send counter value to cloud database. If stop button is pressed send stop time to cloud database. The systems send the information on the server cloud website is <https://thingspeak.com/channels/962485>

You can see all the information history anytime from anywhere from this cloud server website <https://thingspeak.com/channels/962485>



**Figure-3** : Hardware Part of the System



**Figure-4** : Result of Cloud Server Data Base History

## V. CONCLUSION

This IOT based analyzation of press machine is a total framework that executes well being measures for labourers who includes in working unsafe machines. It helps the industrial facility proprietor or supervisor to find the employees and labourers who are not genuine amid the operation of substantial and perilous machine. This framework log labourers industrial facility section designs, machines working example and mischance history. The greater part of this log data can help administrator/proprietor to take choice about him whether he ought to work machine or not.

As the log data is put away over cloud, manufacturing plant proprietor can see this log data from anyplace whenever on the planet. Our System diminishes the unintentional exercises, deadly wounds and passing of

the labourers and employees in metal sheet cutting, metal biting the dust and press kicking the bucket production lines.

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