

# Review Paper on IoT Based Technology

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**ABSTRACT:** *Internet of Things (IOT) has provided an opportunity to build powerful industrial system and applications by leveraging the growing ubiquity of RFID, wireless, mobile and sensor devices. Many industrial IOT applications have been increasingly developed and deployed in recent years. Thirty-two articles were reviewed in this study to determine the current state of the IS research, specifically regarding IoT acceptance among individuals. The review produced results that can be addressed based on three viewpoints namely theoretical (in terms of theories and models), methodological (in terms of research techniques utilized) and empirical (in terms of IoT acceptance factors). Generally, the results indicated that just a single IS journal article was devoted to giving insight into the IoT adoption. On the other hand, non-IS journal and conference articles dominated the study of the IoT phenomena. The findings showed that an IoT acceptance research agenda is built based on the direct evaluation of theoretical, methodological and empirical research. These views are addressed in detail separately in the following paragraphs. Now a day, controlling and monitoring plays a main role in our day-to-day life. Everything we can monitor and control using advanced technologies. Remote access is a wonderful feature that came because of high-speed internet. The main objective of proposed system is to provide a technology oriented and low cost system to make an advanced industry for those who away from their industry and want to control devices.*

**KEYWORDS:** Ethernet, Internet of Things (IOT), Server, Smart phone, Raspberry Pi, Webpage.

## 1. INTRODUCTION

Previously, machines were handled in a straightforward manual manner. However, as technology advances, new methods of managing machinery, such as automation, are developed. We can access a vast amount of information at the touch of a button thanks to the capabilities of computers and the Internet. Everyone wants a low-cost, secure way to control their machines from any smart phone or computer with an Internet connection [1]. The Internet of Things (IoT) is a network of physical objects or "things" that are embedded with electronics, software, sensors, and connectivity to enable them to exchange data with the manufacturer, operator, or other connected devices to achieve greater value and service. Each thing is uniquely identifiable thanks to its embedded computing system, but it can also communicate with other things on the Internet [2].

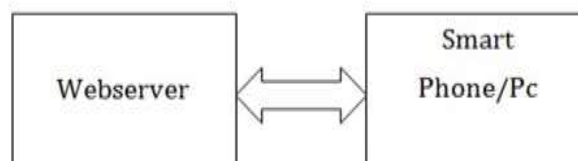
The Internet of Things (IoT) is the world's next major revolution in digitization and commercialization of different modules/products. Everything is connected to the internet, and part of it requires managing and monitoring settings from any location. The Internet of Things, along with wearables and robotics, is the most popular technology today[3]. The information revolution and the growing IT usage has led to the proliferation of use of technology like mobile applications, online services and automated services and therefore, increase people's reliance on them in their everyday lives. Consequently, this has brought to the creation of associated new services like smart vehicles, smart homes and smart cities, assisted by the Internet capabilities, enabling any item to be linked to a network. Such synergistic service is referred to as the Internet of Things (IoT), it encompasses the IT components of hardware, software, and networks - a combination that leads to a strong base that can be utilized as a service innovation platform. More significantly, this technology enables Internet to spread into the actual realm of physical things to create a collection of interlined devices in a type of global infrastructure, in which there is direct connection among sensors, machines, appliances and wearable gadgets online. Industries are ripe with the applications of IoT and this holds true in the case of healthcare, power management, agriculture, urban management and industrial control [4], [5].

The aim of IoT is to create a difference in our lives in terms of allowing different applications to operate across industries and marketplaces, and promoting technology and creative services growth. On a worldwide scale, majority of nations hope to enjoy the promises brought on by smart cities that concentrate on electricity, building and transportation. In a similar study, such anticipation implies higher levels of economic contribution as high as 54 percent, along with an estimated market potential of around U.S. \$392.94 billion. However, despite its attractive advantages, many sectors have been experiencing obstacles to IoT implementation, thereby slowing down its acceptance rate. More precisely, according to

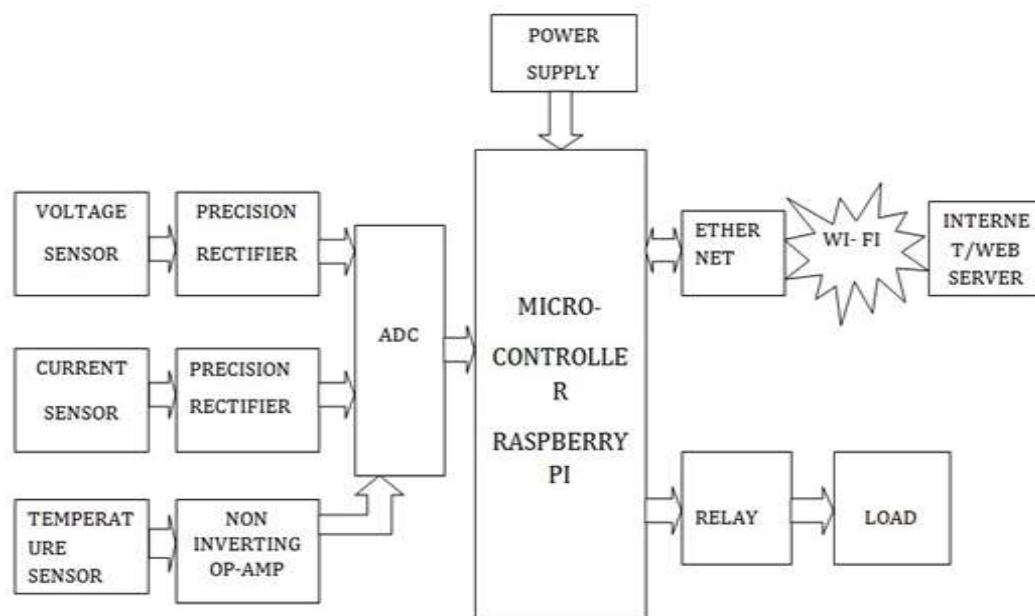
the IoT worth mainly relies on the people, businesses and governments adoption of it, all influenced by the views of the public regarding the associated benefits and drawbacks. This shows that the involvement and acceptance of people matter when it comes to IoT adoption; else, technology will most likely be disregarded [6], [7].

Therefore, collecting information on the understanding of people of IoT plays a vital role in the creation and launch of successful applications installations and acceptability. Regardless of its benefits for people, IoT presents serious ethical, economic, and technological concerns. Notably, existing literature places more emphasis on the technical problems of IoT and less attention to the issues encountered by people in their use of IoT-based services. Further, most of the IoT current research primarily addressed its architecture, design and implementation from the viewpoint of technology. Meanwhile, some authors laid focus on offering a discussion of IoT among individuals either studied IoT in general, which is not accurate since various IoT technologies have distinct characteristics and purposes. Moreover, in-depth investigations were carried out on the problems of IoT acceptability among people are limited; there is a dearth of in depth studies concerning particular IoT-based technologies and services. Hence, in this study, a systematic evaluation of current literature dedicated to IoT acceptability is performed to establish the important problems touched upon by the studies, and identify the under researched areas, based on which, paths for future IS research to follow are suggested [8]–[10].

A printed circuit board (PCB) is the most fundamental component used in the production of any electronic device. The primary technique for creating a PCB is etching. The etchant solution is spread across the boards by nozzles and recirculated by pumps in an etching machine. The nozzle, temperature, and etchant composition may all be adjusted to provide consistent etching rates and a high output rate. Because etching at room temperature can take up to an hour, it is best to heat the etching solvent to around 35-45 degrees Celsius. Because etching performance suffers at higher temperatures, it is important to keep the solvent temperature under control. As a result, the suggested system constantly checks the machine and, when required, takes action. Internet protocols and communication technologies. The fundamental idea is that smart sensors will work together without the need for human intervention to create a new class of applications. The present Internet, mobile, and machine-to-machine (M2M) revolution may be considered the IoT's initial phase. The Internet of Things (IoT) is anticipated to bridge many technologies in the next years to allow new applications by linking physical items to assist intelligent decision-making. This article gives a broad overview of the Internet of Things. Then go through some technical specifics of IoT enabling technology, protocols, and applications in general. Our goal, in comparison to previous survey studies in the area, is to offer a more comprehensive overview of the most important protocols and application problems. Figure 1 shows a block diagram of a server. Figure 2 shows a block diagram of a client.



**Figure 1: The above figure shows a block diagram of a server.**



**Figure 2:** The above figure shows a block diagram of a client.

The system is divided into two parts:

- The server
- The client.

Sensors begin detecting the appropriate parameters once electricity is supplied. To connect with the RaspberryPi system, the data gathered by sensors is conditioned and amplified. The detected values are simultaneously posted to a website. Through IOT, an authorized individual may successfully access data from any location at any time, monitor parameters, and manage the load. Using the username and password, the authorized individual may log in. Only the user may monitor and manage the system if the login and password are valid. One of the most pressing issues in business is maintenance. Using a voltage and current sensor, the voltage and current of an induction motor may be determined. Power consumption may be estimated using these factors, and an indicator can be provided based on that. Green indicates that no maintenance is required; orange indicates that repair is required within 10-15 days, and red indicates that maintenance is required immediately. When the motor's power reaches a certain threshold, it is turned off automatically. The temperature of the solvent is monitored by a temperature sensor, which is used to regulate the machine's heater. When the temperature rises above a certain point, the heater turns off automatically. The Raspberry Pi platform's data is utilized to monitor and manage the machine through the webpage.

### 1.1 Raspberry Pi:

Raspberry Pi is a small computer. The ARM11 IC is found on these boards. The Raspberry Pi's ARM11 CPU is crucial for system monitoring. A low-power consumption ARM11 processor (Raspberry Pi) running at 3.3-5V, 50uA – 1A, as well as a reset and clock circuit, is developed and installed on a PCB. This Raspberry Pi is equipped with an ARM11 32-bit CPU with RISC architecture, 40 GPIO, an 8GB SD Card, and 512 bytes of RAM. Temperature Sensor: A temperature sensor is used to keep track of the temperature of etching chemicals. When the temperature rises over a certain point, the heater turns off automatically.

### 1.2 Current sensor:

A current transformer is a sensor that is used to scale down a sensor to a lower level that is suitable with measuring equipment. A current transformer's core is toroidal, or ringed, with an aperture in the middle. The number of wires wrapping around the core determines the step down ratio between the current in the measured line and the current output linked to the instrumentation.

### 1.3 Voltage sensor:

A voltage transformer is a sensor that is used to scale down a voltage sensor to a level that is suitable with measuring instruments. The number of wires wrapping around the core determines the step down ratio between the voltage in the measured line and the voltage output linked to the instrumentation.

### 1.4 Webpage:

HTML (Hypertext Markup Language) is a kind of global language that is used to decorate a web page. HTML is the abbreviation for Hypertext Markup Language. Hypertext is text that has been enhanced with additional features such as formatting, image multimedia, and so on.

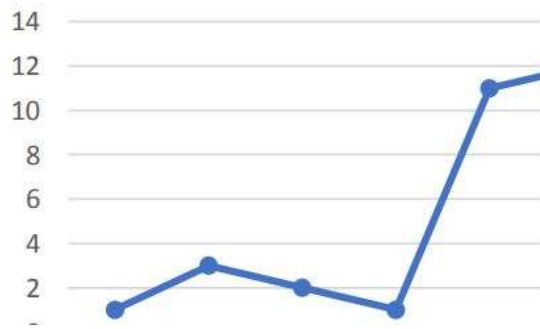
### 1.5 Relay:

A relay is a device that enables a low-power circuit to switch a relatively large current/voltage while also regulating the activities taken. By designing this on a PCB, we may link appliances such as a light bulb, a DC motor, and so on.

In the industrial world, monitoring and regulating machinery has become a significant issue. The majority of the work done on home automation may be found by reviewing all of the following reference papers. The suggested system takes a few industry-relevant parameters and provides services connected to them. The suggested technology allows us to monitor and operate equipment from afar while also providing maintenance information. This kind of technology is beneficial since humans are prone to making errors, such as forgetting to turn off the equipment under certain circumstances.

## 2. DISCUSSION

The author has discussed about the IoT Technology, the result of the process of data extraction were reflected from various elements including articles distribution over the years, outlets of publishing, adopted theories/models, kind of applications, the use stage and the acceptability factors of IoT. Thirty-two articles were reviewed in this study to determine the current state of the IS research, specifically regarding IoT acceptance among individuals. The review produced results that can be addressed based on three viewpoints namely theoretical (in terms of theories and models), methodological (in terms of research techniques utilized) and empirical (in terms of IoT acceptance factors). Generally, the results indicated that just a single IS journal article was devoted to giving insight into the IoT adoption. On the other hand, non-IS journal and conference articles dominated the study of the IoT phenomena. The findings showed that an IoT acceptance research agenda is built based on the direct evaluation of theoretical, methodological and empirical research. These views are addressed in detail separately in the following paragraphs. The digital explosion and the increasing IT use has led to the expansion of use of information like mobile apps, internet services and robotic services and thus, increase people's dependence on them in their daily lives. Consequently, this has led to the development of related new services like smart cars, smart homes and smart cities, aided by the Internet capabilities, allowing any object to be linked to a network. Such synergy technology is referred to as the IoT devices (IoT), it includes the IT elements of hardware, software, and networks - a mixture that leads to a solid foundation that can be used as a service innovation platform. The distribution of articles over the years are given in it is apparent that there are no related articles published before to 2010, while the number of articles showed a rise in 2016 to 12 articles. This specific growth could be a confirmation of the IoT adoption and acceptability research area. Nevertheless, the two published papers in the current year (2018) lack a comprehensive picture of research efforts conducted throughout the year (until April 2018). (Until April 2018). Figure 1 shows the Distribution of articles over years.



**Figure 1: The above figure shows the Distribution of articles over years.**

### 3. CONCLUSION

The author has concluded about the industrial world, monitoring and regulating machinery has become a significant issue. The majority of the work done on home automation may be found by reviewing all of the following reference papers. The suggested system takes a few industry-relevant parameters and provides services connected to them. Accordingly, the research assessed the present contributions of IS research when it tends to come to IoT and ascertained the examined issues and efforts of research studies of this calibre. The researched articles were classified light of the findings and the avenues and implications were splitted based on theories adopted, used research methods, and considerations examined. Aside from the issues impacted upon in the publications, there are several issues that have yet to be examined by IS research findings and thus, this research correct approach avenues to take into account based on the findings obtained.

Concerning the limitations, this study conducted a review of the academic articles obtained from only five literature databases, without considering white papers, magazine articles, and other databases of scholarly works. Articles obtained from a forward and backward search were also omitted although their inclusion would assist in summarising more issues related to IoT acceptance among individuals. Another limitation relates to the search criterion that was confined to the article titles – if abstracts were included, in-depth insights may have been unearthed. In relation to this, the search phrases were limited, which may have unwittingly excluded articles of acquiescence of IoT-based technologies and services that contained equally important words like smart devices, smart homes and smart cities. The suggested technology allows us to monitor and operate equipment from afar while also providing maintenance information. This kind of technology is beneficial since humans are prone to making errors, such as forgetting to turn off the equipment under certain circumstances.

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