

## **Real Time Responding and Big Data Processing Robot**

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### **Abstract**

Since Cloud processing can give versatile, on interest, universal overall open registering and capacity assets, it has been brought into different zones from enormous information investigation to constant robot control. One extremely encouraging range is building up a widespread stage for Internet of Things (IOT) applications utilizing distributed computing innovation. The IOT Cloud framework is regularly highlighted as both continuous reacting and huge information handling. IOT scope is wide and incorporates assortment of articles like advanced cells, tablets, computerized cameras and sensors. When every one of these gadgets are associated with each other, they empower increasingly brilliant procedures and administrations that backing our fundamental needs, environment and wellbeing. The scope of operation is not constrained the length of there is web association accessible in the territory.

**Keywords:** Cloud Computing; Smart Robot; Internet of Things

### **INTRODUCTION**

This paper introduces access control for home automation devices for Internet of Things (IOTs), which offers capabilities to identify and connect many physical sensors into a unified secure system. As a part of IOTs, serious concerns are raised over access of personal and global information pertaining to devices and individual privacy. This research talks about how different devices can be applied different access polices on it. Wireless Home Automation system (WHAS) using IOT is a system that uses computers or mobile devices to control basic home functions and features automatically through internet from anywhere around the world, an automated home is sometimes called a smart home. It is meant to save the electric power and human energy. The home automation system differs from other system by

allowing the user to operate the system from anywhere around the world through internet connection. Home Automation system is the integration of cloud networking, wireless communication, to provide the user with remote control of various lights, fans, and appliances within their home and storing the data in the cloud.

The proposed system uses Microcontroller, Passive Infrared (PIR) Sensor, Temperature Sensor (LM35), Gas Detection Sensor (MQ6) and other elements. This system uses PIR sensor to detect human beings in the near surroundings of the robot and sends the information to owner. Same like as doing all the sensors. The main focus of the project is controlling the movements is access by owner using face book messenger like sending command like move means the robot will move forward direction. As well as all accessible controls in the owner's manual. The system will automatically change on the basis of sensors' data. This system is designed to be low cost and expandable allowing a variety of devices to be controlled.

### **Survey:**

Robots are being used increasingly into our everyday life and also in the industrial applications. Robots are used in the hazardous work environment thus eliminating the harm to the human lives. These robots, which work in such unfriendly conditions for humans, are controlled wirelessly with the help of Bluetooth, Zigbee [1], RF modules and Wi-Fi, etc. In the early robot wireless communication systems, infrared (IR) technology was applied in a large scale because of its low cost. But infrared wave cannot pass through obstacles and infrared systems have poor quality (rain effect) and communication rate. Radio frequency (RF) technology is preferred in the design of mobile robot communication system. Internet technology provides a way for us to develop an integrated network environment for the different applications of different robotic systems. The concept of web based robots is new and it does not have the limitations of the range of operation. In traditional systems, the security forces need to patrol the remote areas in order to protect any illegal persons coming into our territory but it is not possible for them to patrol the whole area as it may be not possible to reach there. In traditional security systems, monitoring devices are usually mounted on fixed locations [2]. In such cases, we may use the proposed robotic system which will go into those areas and provide us with the videos of those locations. When someone enters such secured places, the PIR sensor senses it and immediately it will send an indication to the user through wireless communication and is indicated to the user through alarm. Meanwhile, the camera mounted on the robot will keep on capturing the videos from the surroundings to keep a record of the details of the incident happened and this is readily available to t The future Internet enables us to obtain not only the data, information, and knowledge created and processed by humans but also the information produced from everyday items around us, with functions on sensing and actuation. Moreover, these items will interact with the world through computing and communication using their own identifiers [10, 11, and 12]. IOT is a concept that was suggested by Kevin Ashton, the former director of MIT Auto-ID Center in 1999 [13], and it is diversely defined in academic and industrial circles.

ITU argues that while the existing ICT enables humans and things to give and receive information “anytime, anywhere,” IOT is a technology that makes the connection and communication between humans and things, as well as between things and other things, possible by adding a new concept of “anything” as shown in Figure 1 [14, 15] below. This “anything” includes not only the specific things on physical space but also the information identified and stored on cyberspace [16].

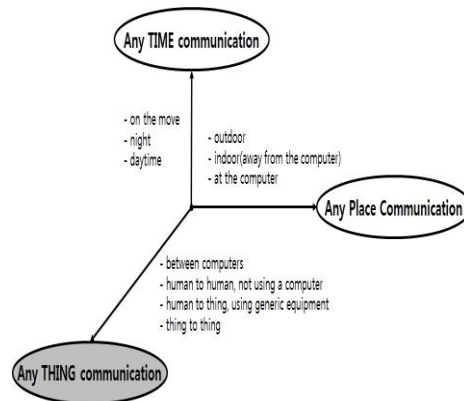


Fig.1. IOT Model

EU stipulates that IOT refers to all the things that can connect and communicate with their ambient environmental factors through an interface that is intellectualized with their own identifiers and cyber personalities [17]. The Korea Communications Commission (KCC) defines IOT, a similar concept as M2M, as “a future broadcasting-and-International Journal of Control and Automation Vol. 8, No. 7 (2015) the user.

Existing Model

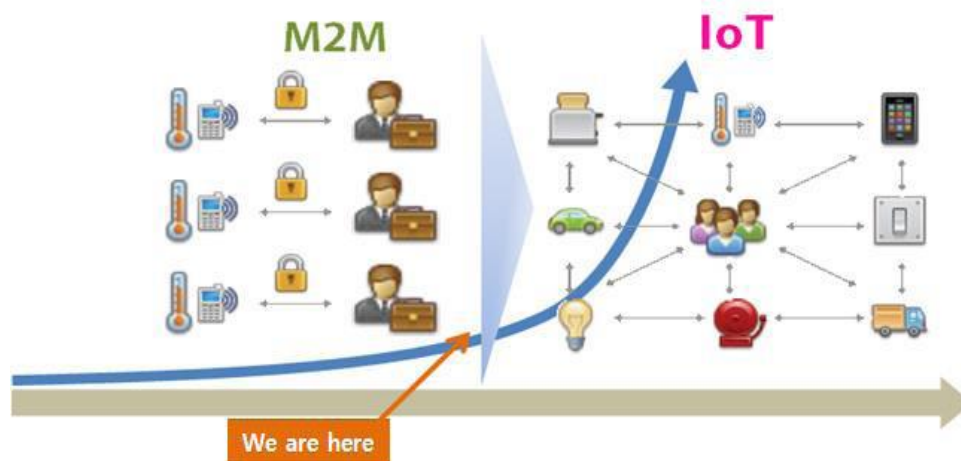


Fig.2. Existing Model

**EXISTING SYSTEM**

- The existing system suffered many problems like high cost to set up communication between robot and rescue control unit, noisy wireless communication link between robot and control unit which ultimately stopped robot to function etc.
- A smart home, in the conventional sense, supports automatic systems to control lighting and temperature and activate security apparatus. It is used to monitor many aspects of daily life. Nowadays, smart homes incorporate many computing technologies to provide convenient personalized service to users within the home network.
- Recently, much research on the smart home has focused on the home gateway. Using a home gateway, a smart home can form a peer-to-peer network to provide home network service anytime, anywhere.
- Many existing, well-established home automation systems are based on wired communication. This does not pose a problem until the system is planned well in advance and installed during the physical construction of the building.
- But for already existing buildings the implementation cost goes very high. In contrast, Wireless systems can be of great help for automation systems. With the advancement of wireless technologies such as Wi-Fi, cloud networks in the recent past, wireless systems are used every day and everywhere.
- Most of the communication using Past has Radio Frequency for controlling devices and movement of the robot.
- In contrast, Wireless systems can be of great help for automation systems. With the advancement of wireless technologies such as Wi-Fi, cloud networks in the recent past, wireless systems are used every day and everywhere.

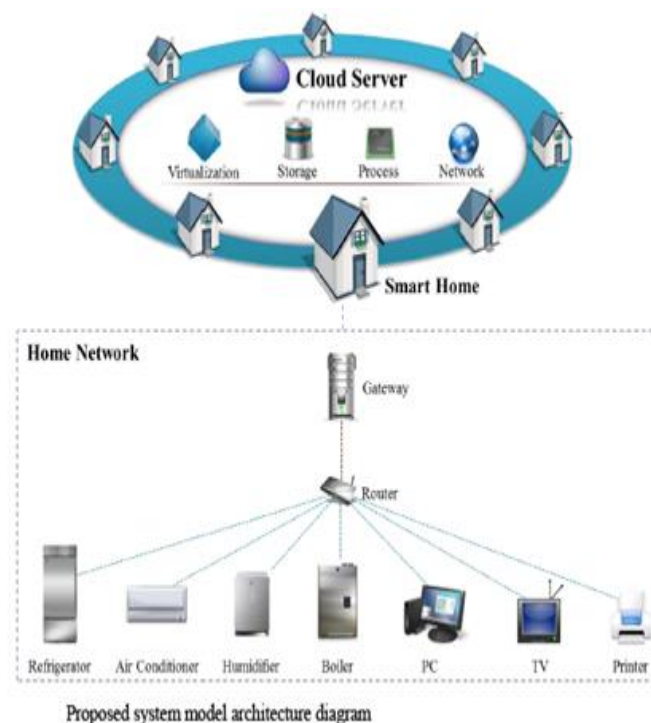
**PROPOSED SYSTEM**

The proposed system provides home appliance monitoring service to users via a home appliance virtualization function supported by a cloud server. The cloud server also stores the status information of the home appliances transmitted from the gateway of the smart home and uses cloud computing technology to process this information. The gateway consists of a PC and home network using UPnP to search and collect the metadata of the home appliances in a smart home. The collected metadata is transmitted to the cloud server by the gateway.

- **Reduced installation costs:** First and foremost, installation costs are significantly reduced since no cabling is necessary. Wired solutions require cabling, where material as well as the professional laying of cables (e.g. into walls) is expensive.
- **System scalability and easy extension:** Deploying a wireless network is especially advantageous when, due to new or changed requirements, extension of the network is necessary. In contrast to wired installations, in which cabling extension is tedious. This makes wireless installations a seminal investment.

- Aesthetical benefits: Apart from covering a larger area, this attribute helps to full aesthetical requirements as well. Examples include representative buildings with all-glass architecture and historical buildings where design or conservatory reasons do not allow laying of cables.
- Integration of mobile devices: With wireless networks, associating mobile devices such as PDAs and Smartphones with the automation system becomes possible everywhere and at any time, as a device's exact physical location is no longer crucial for a connection (as long as the device is in reach of the network). For all these reasons, wireless technology is not only an attractive choice in renovation and refurbishment, but also for new installations.

In our proposal, Social Network using control the Robot movement Like Forward , Reverse, Left, Right and controlling home devices like light, Fan, TV, Fridge,..Etc. we proposed for using social Network for Face book in that network using texting App in Facebook messenger in our Smartphone/PC.



**Fig.3.** Proposed Model

#### **UTILIZED PRODUCT:**

The Arduino WiFi Shield connects your Arduino to the internet wirelessly. Connect wireless network by following a few simple instructions to start controlling your world through the internet. As always with Arduino, every element of the platform – hardware, software and documentation – is freely available and open-source. This

means you can learn exactly how it's made and use its design as the starting point for your own circuits.

Requires an Arduino board (not included)

Operating voltage 5V (supplied from the Arduino Board)

Arduino Wi-Fi Shield Front *Arduino Wi-Fi Shield*  
Back

Arduino Due compatible

Connection via: 802.11b/g networks

Encryption types: WEP and WPA2 Personal

Connection with Arduino on SPI port

on-board micro SD slot

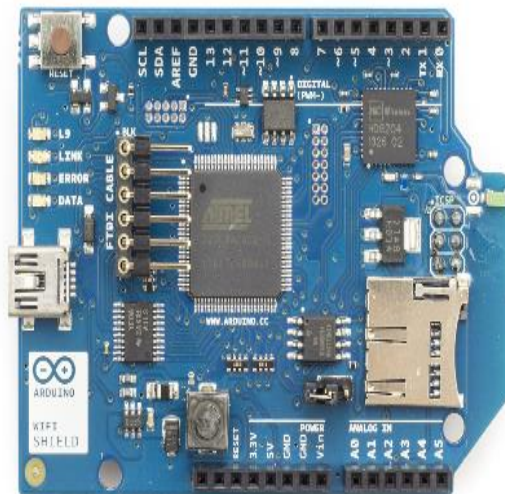
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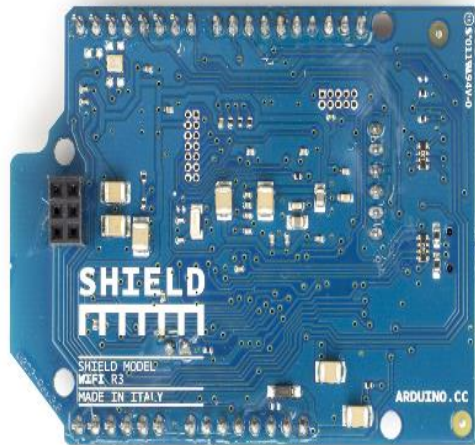
FTDI connection for serial debugging of Wi-Fi shield

Mini-USB for updating Wi-Fi shield firmware

## CONCLUSION

In this paper, we propose a cloud-based system model to provide real-time home appliance monitoring and control services. The cloud server stores and manages a large amount of the status data generated by home appliances in smart homes. This robotic system will be very much helpful for the security forces to find any infiltration across the borders. This system can be used any conditions and areas where it is difficult for the security forces to reach it can monitor the areas. As the communication is done with the help of internet so limitation of range of operation does not arise and thus we can monitor any remote areas. Therefore, to support better load dispersion.





**Fig.4** Arduino Wi-Fi Shield

### **FUTURE SCOPE**

The time delay which occurs in the execution of commands has to be reduced and thus we can have real time access to the robot. With reduced time delay we can have faster operation and quick response to any illegal activities in the monitored area. This system can also be used in the disaster (earthquakes, mine collapse) areas to find any injured persons and give information to rescue teams. Also it can be used as a spy robot.

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### **REFERENCES**

- [1] Intelligent Personal Assistant and Surveillance Robot using Zigbee Communication By Krishnaswamy Kannan and Gowtham S, International Journal of Engineering Science and Technology (IJEST), ISSN : 0975-5462 Vol. 4 No.10 October 2012.
- [2] W. Lao, J. Han and Peter H.N. de With, "Automatic video-based human motion analyzer for consumer surveillance system", IEEE Trans Consumer Electronics, Vol. 55, No. 2, pp. 591-598, 2009.
- [3] Wi-Fi Robot for Video Monitoring & Surveillance System By Pavan C & Dr. B. Sivakumar, International Journal of Scientific & Engineering Research Volume 3, Issue 8, August-2012

- [4] Md Athiq UR Raza Ahamed M., Wajid Ahamed, A Domestic Robot for Security Systems by Video Surveillance Using Zigbee Technology, *International Journal of Scientific Engineering and Technology* (ISSN : 2277-1581) Volume 2 Issue 5, pp : 448-453 1 May 2013.
- [5] The Robot control using the wireless communication and the serial communication, by JONG HOON AHNN, Project Advisor: Professor Mark Campbell, Cornell University May 2007.
- [6] G. Song, Z. Wei, W. Zhang and A. Song, "A hybrid sensor network system for home monitoring applications", *IEEE Trans Consumer Electronics*, Vol. 53, No. 4, pp. 1434-1439, 2007.
- [7] P. Saucy and F. Mondana, KhepOnTheWeb: Open access to a mobile robot on the Internet, *IEEE Robotics and Automation Magazine*, pages 41-47, March 2000.
- [8] Huosheng Hu, Lixiang Yu, Pui Wo Tsui, Quan Zhou, Internet-based Robotic Systems for Teleoperation, *International Journal of Assembly Automation*, Vol. 21, No. 2.
- [9] D. Schulz, W. Burgard, D. Fox, S. Thrun, and A.B. Cremers, Web interface for mobile robots in public places, *IEEE Robotics and Automation Magazine*, pages 48-56, March 2000.
- [10] Zhigang Wang, Lichuan Liu and MengChu Zhou, Protocols and Applications of Ad-hoc RobotWireless Communication Networks: An Overview, *International Journal of Intelligent Control and Systems* Vol. 10, No. 4, December 2005, 296-303.
- [11] Dean, J., Ghemawat, S.: Mapreduce: Simplified Data Processing on Large Clusters. In: *OSDI'04, 6th Symposium on Operating Systems Design and Implementation*, pp. 137--150 (2004)
- [12] Dugeon, O., Hahdi, M., Bars, R., Carbu, R.: Extended UPnP Multimedia Content Delivery with an HTTP Proxy. In: *FMN 2010, LNCS 6157*, pp. 87--99 (2010)
- [13] Cui, Y., Kim, M., Lee, H.: Social Media Sharing System: Supporting Personalized Social Media Service Using UPnP Technology in Cloud Computing Environment. *Information* 15, 2043--2054 (2012)
- [14] Bregman, D.: Smart Home Intelligence – The eHome that Learns. *International Journal of Smart Home* 4(4), 35--46 (2010)
- [15] Lin, H.T.: The Development of Control and Energy Usage Information Modules for Smart Homes. In: *ICCAIS 2012*, pp. 236--240 (2012)
- [16] Wei, Z., Qin, S., Jia, D., Yang, Y.: Research and Design of Cloud Architecture for Smart Home. In: *ICSESS 2010*, pp. 86--89 (2010)
- [17] Kim, J.E., Boulos, G., Yackovich, J., Barth, T., Beckel, C., Mosse, D.: Seamless Integration of Heterogeneous Devices and Access Control in Smart Homes. In: *2012 8th International Conference on Intelligent Environments*, pp. 206--213 (2012)
- [18] Contributing members of UPnP Forum.: UPnP Device Architecture Version 1.1. In: *UPnP Forum* (2008)



- [19] Hammer-Lahav., E.: The OAuth 1.0 Protocol. In: Internet Engineering Task Force, RFC 5849 (2010)
- [20] Vora, M.N.: Hadoop-HBase for Large-Scale Data. In: 2011 International Conference on Computer Science and Network Technology, pp. 601--605 (2011)
- [21] 3% [maditsmadfunny.wikia.com/wiki/Th..](http://maditsmadfunny.wikia.com/wiki/Th..)
- [22] 81% [prezi.com/ndgpv0eecq8e/nicolas/](http://prezi.com/ndgpv0eecq8e/nicolas/)
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