International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES)
Impact Factor: 3.45 (SJIF-2015), e-ISSN: 2455-2585
Volume 4, Issue 5, May-2018

Implementation of Internet Of Things Based Home Automation System Using Node MCU

Hitesh N. Patel
V.T. Patel Department of Electronics & Communication
Charusat, Changa.Annad, India
E-mail:hiteshpatel.ec@charusat.ac.in

Abstract: With headway of Automation innovation, life is getting more easier in all angles. In this day and age Automatic frameworks are being favoured over manual framework.. With the quick innovations in the quantity of clients of web over the previous decade has made Internet an integral part of life, and IoT is the most recent and rising web innovation. Web of things is a developing system of regular question from modern machine to shopper merchandise that can share data and finish assignments while you are occupied with different exercises. Remote Home Automation system (RHAS) utilizing IoT is a framework that utilizations PCs or cell phones to control essential home capacities and highlights consequently through web from anyplace around the globe, a computerized home is some of the time called a brilliant home. The home computerization framework varies from other framework by enabling the client to work the framework from anyplace around the globe through web association. In this paper, I proposed Home automation system using Internet of Things and Node MCU. In which home appliances can be controlled by IP based HTML webpage from anywhere around the globe.

Keywords: Automation ,Remote Home Automation System, Internet of Things, Web of Things.

I. INTRODUCTION

Homes of the 21st century will turn out to be increasingly self-controlled and mechanized because of the solace it gives, particularly when utilized in a private home. A home computerization framework is an implies that enable clients to control electric machines of fluctuating kind.

Numerous current, settled home computerization frameworks depend on wired correspondence. This does not represent an issue until the point that the framework is arranged well ahead of time and introduced amid the physical development of the building. Be that as it may, for effectively existing structures the usage cost goes high. With the progression of remote advancements, for example, Wi-Fi, cloud arranges in the current past, remote frameworks are utilized each day and all overAs of late, remote frameworks like Wi-Fi have turned out to be increasingly regular in home systems administration. Additionally in home and building robotization frameworks, the utilization of remote advances gives a few focal points that couldn't be accomplished utilizing a wired system as it were[1].

- Reduced establishment costs: First and premier, establishment costs are fundamentally diminished since no cabling is essential. Wired arrangements require cabling, where material and in addition the expert laying of links (e.g. into dividers) is costly.

- System adaptability and simple expansion: Deploying a remote system is particularly beneficial when, because of new or changed prerequisites, augmentation of the system is fundamental. As opposed to wired establishments, in which cabling expansion is repetitive. This makes remote establishments an original venture.

- Aesthetical advantages: Apart from covering a bigger zone, this ascribe fulls aesthetical necessities too. Illustrations incorporate agent structures with all-glass engineering and verifiable structures where plan or center reasons don't permit laying of links.

- Integration of cell phones: With remote systems, partner cell phones, for example, PDAs and Smart phones with the computerization framework winds up conceivable all over the place and whenever, as a gadget's correct physical area is never again essential for an association (as long as the gadget is in reach of the system). For every one of these reasons, remote innovation isn't just an alluring decision in redesign and restoration, yet additionally for new establishments.

II. RELATED WORK

[1] Sirsath N. S, Dhole P. S, Mohire N. P, Naik S. C & RatnaparkhiN.S

This paper proposes a Home Automation system that deploys the integration of multi-touch mobile devices, cloud networking, wireless communication, and power-line communication to provide the user with remote control of various lights and appliances within their home. This system uses a consolidation of a mobile phone application, handheld wireless remote,and PCbasedprogramtoprovideameans of user interface to the consumer.

[2] Basil Hamed

The main objective of this Paper is to design and implement a control and monitor system for smart house. Smart house system consists of many systems that controlled by LabVIEW software as the main controlling system in this paper. Also, the smart house system was supported by remote control system as a sub controlling system. The system also is connected to the internet to monitor and control the house equipment's from anywhere in the world using LabVIEW.

[3] Deepali Javale, Mohd. Mohsin, ShreerangNandanwar

The prime objective of this paper is to assist handicapped/old aged people. It gives basic idea of how to control various home appliances and provide a security using Android phone/tab. The design consists of Android phone with home automation application, Arduino Mega ADK. User can interact with the android phone and send control signal to the Arduino ADK which in turn will control other embedded devices/sensors.

[4] Basma M. Mohammad El-Basioni, Sherine M. Abd Elkader and Mahmoud Abdelmonim Fakhreldin

This paper proposes a new design for the smart home using the wireless sensor network and the biometric technologies. The proposed system employs the biometric in the authentication for home entrance which enhances home security as well as easiness of home entering process. The structure of the system is described and the incorporated communications are analyzed, also an estimation for the whole system cost is given which is something lacking in a lot of other smart home designs offers. WB-SH is designed to be capable of incorporating in a building automation system and it can be applied to offices, clinics, and other places. The paper ends with an imagination for the future of the smart home when employs the biometric technology in a larger and more comprehensive form. The paper ends with an imagination for the future of the smart home when employs the biometric technology in a larger and more comprehensive form.

[5] Vinay sagar K N, Kusuma S M

This paper Propose a Home Automation system(HAS) using Intel Galileo that employs 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 system will automatically change on the basis of sensor data. This system is designed to be low cost and expandable allowing a variety of devices to be controlled.

III. PROPOSED SYSTEM

This paper proposes a Home Automation framework that utilizes the mix of multi-touch cell phones, cloud organizing, remote correspondence, and electrical cable correspondence to give the client remote control of different lights and apparatuses inside their home. This framework utilizes a combination of a cell phone application, handheld remote, and PC based program.

A. Problem Definition

Home mechanization frameworks confront four fundamental difficulties, these are high cost of possession, rigidity, poor reasonability, and trouble in accomplishing security. The fundamental targets of this examination is to plan and execute a home computerization framework utilizing IoT that is equipped for controlling and robotizing the greater part of the house apparatuses through a simple sensible web interface. The proposed framework has an awesome adaptability by utilizing Wi-Fi innovation to interconnect its circulated sensors to home computerization server. This will diminish the sending cost and will build the capacity of overhauling, and framework reconfiguration.

B. Proposed System Feature

The proposed framework is a disseminated home robotization framework, comprises of server, sensors. Server controls and screens the different sensors, and can be effortlessly designed to deal with more equipment interface module (sensors). The Intel Galileo improvement board, with worked in WiFi card port to which the card is embedded, goes about as web server. Computerization System can be gotten to from the web program of any nearby PC in a similar LAN utilizing server IP, or remotely from any PC or versatile

handheld gadget associated with the web with suitable web program through server genuine IP (web IP). Wi-Fi innovation is chosen to be the system foundation that associates server and the sensors. Wi-Fi is enhanced framework security (by utilizing secure Wi-Fi association), and to expand framework versatility and adaptability.

IV. SYSTEM DESIGN AND IMPLEMENTATION

A. Proposed Home Automation System Functions

The proposed home mechanization framework has the capacities to control the accompanying segments in clients home and screen the accompanying alerts:

- Temperature and stickiness
- Motion discovery
- Fire and smoke identification
- Light level

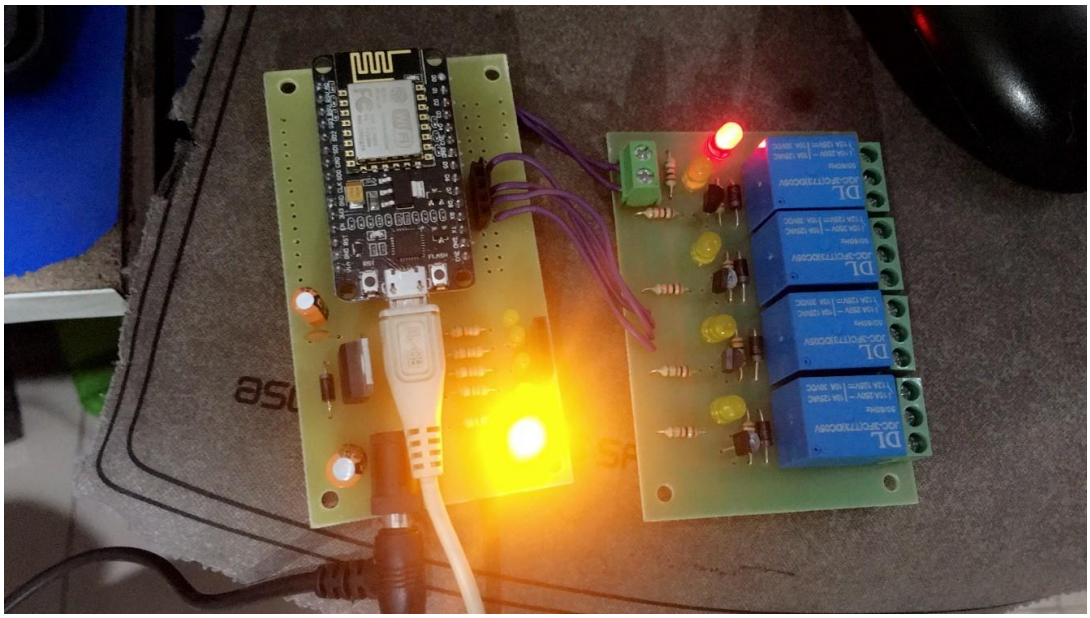
The proposed home mechanization framework can control the accompanying apparatus:

- Lights on/off/diminish
- Fan on/off
- On/off various machine

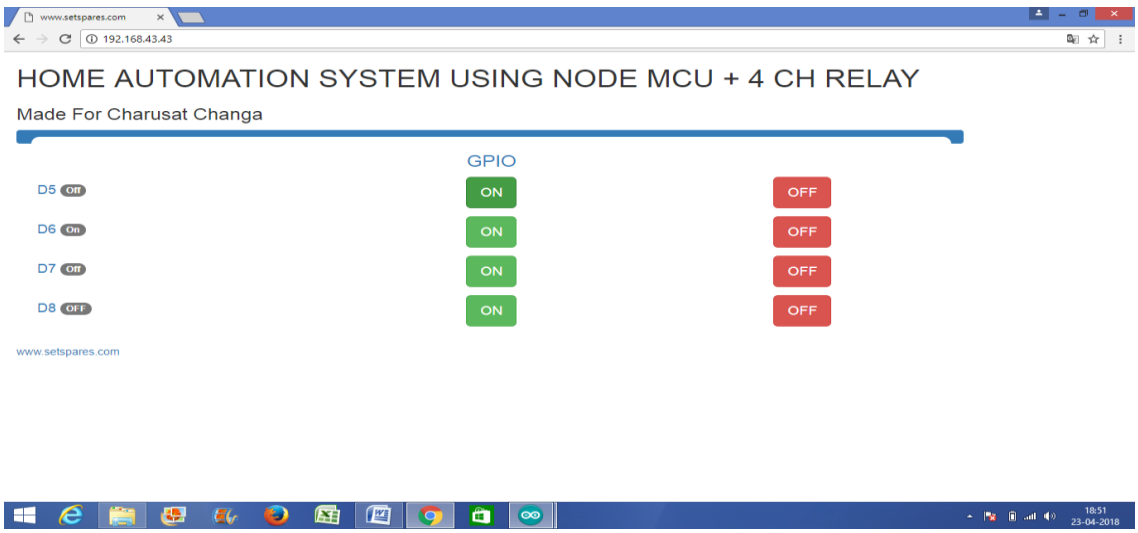
B. Front End Design

HTML is an organization that advises a PC how to show a website page. The archives themselves are plain content documents with unique "labels" or codes that a web program uses to decipher and show data on your PC screen. HTML remains for Hyper Text Mark up Language; a HTML document is a content record containing little markup labels. The mark up labels advise the Web program how to show the page. A HTML records must have a htm or html document expansion.

C. Implementation Setup



D. Web Server



V. CONCLUSION AND FUTURE WORK

A. Conclusion

The home robotization utilizing Internet of Things has been tentatively demonstrated to work tastefully by associating straightforward apparatuses to it and the machines were effectively controlled remotely through web. The composed framework not just screens the sensor information, similar to temperature, gas, light, movement sensors, yet in addition incites a procedure as per the necessity, for instance exchanging on the light when it gets dim. It additionally stores the sensor parameters in the cloud (Gmail) in an opportune way. This will help the client to investigate the state of different parameters in the home whenever anyplace.

B. Future work

Utilizing this framework as structure, the framework can be extended to incorporate different choices which could incorporate home security include like catching the photograph of a man moving around the house and putting away it onto the cloud. This will decrease the information stockpiling than utilizing the CCTV camera which will record constantly and stores it. The framework can be extended for vitality observing, or climate stations. This sort of a framework with separate changes can be executed in the healing centers for debilitate individuals or in ventures where human intrusion is unthinkable or unsafe, and it can likewise be actualized for natural checking.

REFERENCES

[1] Sirsath N. S, Dhole P. S, Mohire N. P, Naik S. C & Ratnaparkhi N.S Department of Computer Engineering, 44, Vidyanagari,Parvati,Pune-411009,India University of Pune, “Home Automation using Cloud Network and Mobile Devices”.

[2] Deepali Javale, Mohd. Mohsin, Shreerang Nandanwar “Home Automation and Security System Using Android ADK” in International Journal of Electronics Communication and Computer Technology (IJECCT) Volume 3 Issue 2 (March 2013).

[3] Charith Perera, Student Member, IEEE, Arkady Zaslavsky, Member, IEEE, Peter Christen,and DimitriosGeorgakopoulos, Member, IEEE “Context Aware Computing for The Internet of Things: A Survey”. IEEE COMMUNICATIONS SURVEYS & TUTORIAL.

[4] Charith Perera_y, Arkady Zaslavskyy, Peter Christen_ and Dimitrios Georgakopoulosy Research School of Computer Science, The Australian National University, Canberra, ACT 0200, Australia yCSIRO ICT Center, Canberra, ACT 2601, Australia ” CA4IOT: Context Awareness for Internet of Things”.

[5] R. K. Kodali, V. Jain, S. Bose and L. Boppana, "IoT based smart security and home automation system," *2016 International Conference on Computing, Communication and Automation (ICCCA)*, Noida, 2016, pp. 1286-1289.

[6] Vinay sagar K N, Kusuma S M," Home Automation Using Internet of Things" International Research Journal of Engineering and Technology (IRJET), Volume: 02 Issue: 03 Jan-2015.