

A Low Cost Home Automation System Using Wi-Fi Based Wireless Sensor Network Incorporating Internet of Things (IoT)

ABSTRACT

With the rapid increase in usage and reliance on the vivid features of smart devices, the need for interconnecting them is genuine. Many existing systems have ventured into the sphere of Home Automation but have apparently failed to provide cost-effective solutions for the same. This paper illustrates a methodology to provide a low cost Home Automation System (HAS) using Wireless Fidelity (Wi-Fi). This crystallizes the concept of internetworking of smart devices. A Wi-Fi based Wireless Sensor Network (WSN) is designed for the purpose of monitoring and controlling environmental, safety and electrical parameters of a smart interconnected home. The user can exercise seamless control over the devices in a smart home via the Android application based Graphical User Interface (GUI) on a smart phone. The overall cost of large scale implementation of this system is about INR 6000 or USD 100.

EXISTING SYSTEM

In existing system, if we forgot to switch off any switch at home then we have to go home and then switch off it. To avoid that home automation is introduced. 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.

DRAWBACKS

- Cost is high.
- Difficult in achieving security.

PROPOSED SYSTEM

This paper illustrates a methodology to provide a low cost Home Automation System (HAS) using Wireless Fidelity (Wi-Fi). This crystallizes the concept of internetworking of smart devices. A Wi-Fi based Wireless Sensor Network (WSN) is designed for the purpose of monitoring and controlling environmental, safety and electrical parameters of a smart interconnected home. The user can exercise seamless control over the devices in a smart home via the Android application based Graphical User Interface (GUI) on a smart phone. The overall cost of large scale implementation of this system is about INR 6000 or USD 100.

ADVANTAGES

- Reduced installation costs.
- System scalability and easy extension.

SYSTEM REQUIREMENTS

H/W System Configuration:-

- Processor - Pentium –IV
- RAM - 4 GB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

S/W System Configuration:-

- Operating System : Windows 7 or 8 32 bit
- Application Server : Tomcat5.0/6.X
- Programming Language : Java
- Java Version : JDK 1.6 and above