Home Automation

Home Automation is automation of the home, housework or household activity. Home automation may include centralized control of lighting, HVAC (heating, ventilation and air conditioning), appliances, security locks of gates and doors and other systems, to provide improved convenience, comfort, energy efficiency and security. Home automation for the elderly and disabled can provide increased quality of life for persons who might otherwise require caregivers or institutional care. The popularity of home automation has been increasing greatly in recent years due to much higher affordability and simplicity through smartphone and tablet connectivity. The concept of the "Internet of Things" has tied in closely with the popularization of home automation. A home automation system integrates electrical devices in a house with each other. Through the integration of information technologies with the home environment, systems and appliances are able to communicate in an integrated manner which results in convenience, energy efficiency, and safety benefits. However, problems with complexity, competition between vendors, multiple incompatible standards and the resulting expense have limited the penetration of home automation to homes of the wealthy, or ambitious hobbyists. Home automation or smart homes can be described as introduction of technology within the home environment to provide convenience, comfort, security and energy efficiency to its occupants. With the introduction of the Internet of Things, the research and implementation of home automation are getting more popular. Various wireless technologies that can support some form of remote data transfer, sensing and control such as Bluetooth, Wi-Fi, RFID, and cellular networks have been utilized to embed various levels of intelligence in the home. Many of the home automation systems that are commercially available can be separated into two categories: locally controlled systems and remotely controlled systems. Locally controlled systems use an in-home controller to achieve home automation. This allows users complete use of their automation system from within their home via a stationary or wireless interface. Remotely controlled systems use an Internet connection or integration with an existing home security system to allow the user complete control of their system from their mobile device, personal computer, or via telephone from their home security provider. There are a number of issues involved when designing a home automation system. It should provide a user- friendly interface on the host side, so that the devices can be easily setup, monitored, and controlled. Furthermore, the overall system should be swift enough to realize the true power of wireless technology.

## RESULTS

The system allows the user to control appliances and lights in their home from a smart phones and PC from anywhere in the world through an internet connection. It also allows the user to control their units within their home from a wireless remote. In these papers we proposed a Novel technique that will give us best result. Which include prediction by providing Notifications to the user if problem occurs in any device. First of all, we collect different sensor values and analyses it with the help of microcontroller. We can monitor and control it with pc or any android device connected to it. If problem, found in any device we notify owner and the related technician about the problem. We use Naive Bayes classifier algorithm for data mining which is a simple probabilistic classifier based on applying Bayes’ theorem with strong (naive) independence assumptions. VI. SCOPE AND FUTURE WORK in our system we have SMS and e-mail notifications to the user but in future we can add also some voice alerts. This system can be expanded to include various other options which could include home security feature such as open-door and motion detection, energy monitoring.

Internet of Things (IoT) term represents a general concept for the ability of network devices to sense and collect data from around the world, and then share that data across the Internet where it can be processed and utilized for various interesting purposes. The IoT is comprised of smart machines interacting and communicating with other machines, objects, environments and infrastructures. Now a day’s every person is connected with each other using lots of communication way.

Where most popular communication way is internet so in another word we can say internet which connect peoples. The essential idea of the Internet of Things (IoT) has been around for nearly two decades, and has attracted many researchers and industries because of its great estimated impact in improving our daily lives and society. When things like household appliances are connected to a network, they can work together in cooperation to provide the ideal service as a whole, not as a collection of independently working devices.

This is useful for many of the real-world applications and services, and one would for example apply it to build a smart residence; windows can be closed automatically when the air conditioner is turned on, or can be opened for oxygen when the gas oven is turned on. The idea of IoT is especially valuable or persons with disabilities, as IoT technologies can support human activities at larger scale like building or society, as the devices can mutually cooperate to act as a total system. Communication capability and remote manual control lead to the next step … how do I automate things and, based on my settings and with sophisticated cloud-based processing, make things happen without my intervention? That’s the ultimate goal of some IoT applications. And, for those applications to connect with and leverage the Internet to achieve this goal, they must first become “smart” (incorporate an MCU/embedded processor with an associated unique ID) then connected and, finally, controlled. Those capabilities can then enable a new class of services that makes life easier for their users.

The term Internet of Things was first coined by Kevin Ashton in 1999 in the context of supply chain management. However, in the past decade, the definition has been more inclusive covering wide range of applications like healthcare, utilities, transport, etc. Although the definition of „Things‟ has changed as technology evolved, the main goal of making a computer sense information without the aid of human intervention remains the same. A radical evolution of the current Internet into a Network of interconnected objects that not only harvests information from the environment (sensing)and interacts with the physical world (actuation/command/control), but also uses existing Internet standards to provide services for information transfer, analytics, applications, and communications.

## APPLICATIONS

This system is designed for a shopping complex mall but it can be also used in various organizations like educational Notice board system or at Railway station, Bus stand and Air-port to display the information and notification. In mall it is also used to control the humidity and temperature of mall via central AC by using temperature sensor. In Industrial organization it can be also used. E-display system may be used to display Emergency message in Hospitals. Some areas where IoT frequently used

Smart cities: -

To make the city as a smart city to engage with the data exhaust produced from your city and neighbourhood.

• Monitoring of parking areas availability in the city.

• Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.

• Detect Android devices, iPhone and in general any device which works with Bluetooth interfaces or Wi-Fi.

Domestic & Home Automation: -

In home by using the IoT system remotely monitor and manage our home appliances and cut down on your monthly bills and resource usage.

• Energy and Water Use: Energy and water supply consumption monitoring to obtain advice on how to save cost and resources.

• Remote Control Appliances: Switching on and off remotely appliances to avoid accidents and save energy.

• Intrusion Detection Systems: Detection of windows and doors openings and violations to prevent intruders.

• Art and Goods Preservation: Monitoring of conditions inside museums and art warehouses.

## CONCLUSION

The IoT promises to deliver a step change in individuals‟ quality of life and enterprises‟ productivity. Through a widely distributed, locally intelligent network of smart devices, the IoT has the potential to enable extensions and enhancements to fundamental services in transportation, logistics, security, utilities, education, healthcare and other areas, while providing a new ecosystem for application development. A concerted effort is required to move the industry beyond the early stages of market development towards maturity, driven by common understanding of the distinct nature of the opportunity. This market has distinct characteristics in the areas of service distribution, business and charging models, capabilities required to deliver IoT services, and the differing demands these services will place on mobile networks.