

Industrial Automation with a Smart Robot and Mobile Control

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Abstract:Internet of things is the rapidly increasing technology. IoT is the network of physical objects or things embedded with electronic software, sensors and network connectivity which enables these objects to connect for data exchange in this project we are developing a system which will automatically monitor the industrial application and generates safety alert or alarm from leaking of raw gas and fire, which are the most important things to be monitored for both home and industrial applications considering the safety and security of people. The robot with LDR and Temperature sensor senses the room temperature AC and light intensity respectively. If the temperature high or light intensity reduces then it will switch ON/OFF the AC and Light. As we go through industrial purpose it will also for industrial needs, system will sense the smoke and sends alert to the system which is connected to WiFi or router.

Key Words: Raspberry Pi, Industrial Automation system, Android

1.INTRODUCTION

Industrial automation system is growing rapidly; they are used to provide comfort, convenience, quality of life and security for residents. Nowadays, most Industrial automation systems are used to provide ease to elderly and disabled people and they reduce the human labor in the production of services and goods. This system can be designed and developed by using a single controller which has the ability to control and monitor different interconnected appliances such as power plugs, lights, temperature and humidity sensors, smoke, gas and fire detectors as well as emergency and security systems. One

of the greatest advantage of Industrial automation system is that it can be controlled and manage easily from an array of devices such as smart phone, tablet, desktop and laptop. The rapid growth of wireless technologies influences us to use smart phones to remotely control and monitor the industrial appliances around the world. Several Industrial automation systems use smart phones to communicate with microcontrollers using various wireless communication techniques such as Bluetooth, GSM, ZigBee, and WI-FI. Smartphone Application are used to connect to the network so that the authorized users can adjust the setting of system on their personal devices.

2.LITERATURE SURVEY

When people think about Industrial automation, most of them may imagine living in a smart Industry: One remote controller for every industry appliance, starting air conditioner automatically and shading the window automatically when night coming. To some extent Industry automation equals to smart Industry. They both bring out smart living condition and make our life more convenient and fast.

Although "lights-out" manufacturing, a concept in which the lights can be switched off leaving everything to the robots, is still a dream, remarkable progress has been made since the 1980s. Many repetitive and high precision work.

Industrial Automation has a few key segments. In the 1970's, the original DCS was developed in the 1970's by a team of engineers at Honeywell, and the first PLC was the

brainchild of inventor Dick Morley and others. Several innovative startups developed HMI software for PLCs and industrial I/O. Innovative sensors and actuators came from some key companies. In a fragmented business, most innovators get stuck at growth plateaus and get bought out. But some continue to generate independent growth and success.

3.SYSTEM ARCHITECTURE

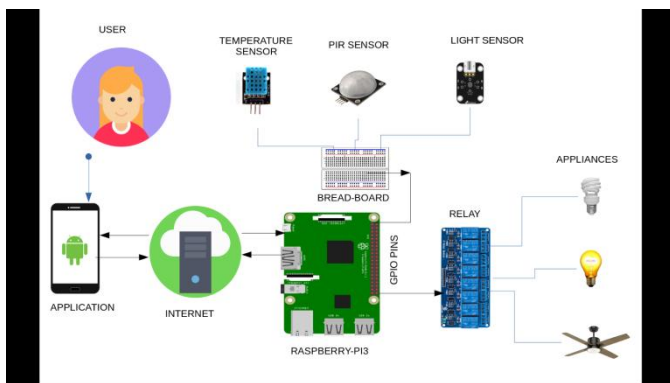


Fig 1: System Architecture

4.BLOCK DIAGRAM

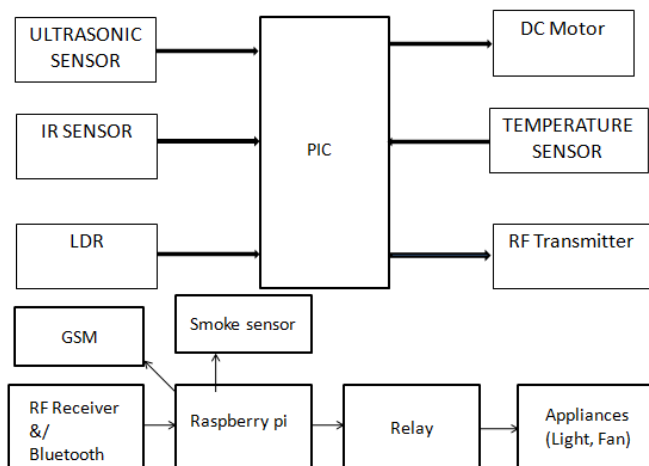


Fig 2:Block Diagram

5.EXISTING SYSTEM:

Typically, domestic systems need to collect data from various sensors and make things such as light and temperature to automatically adjust. Moreover, using

these sensors, many tasks can be accomplished, such as, controlling curtains and windows without human intervention, opening, controlling the climate inside the house or industry, providing the corresponding light in each room and so on. However, the concept of Industrial automation gets increasingly louder on the market, being a relatively new concept which draws attention to researchers. This leads to new technologies that can perform Industrial automation functions.

6.PROPOSED SYSTEM:

In this proposed system freely moving robot in home or industry if its detects the obstacle then it stops and automatically search for path then it goes on that path using magnetic field(invisible). It follows the path with measurement Temperature and Light intensity. If the temperature and light intensity value changes then it send signal to the automation kit it ON/OFF the light and fan in the Industry and also if it detects the smoke or fire on that path it will sent alert message to the mobile using GSM. The systems also have Bluetooth control so the person can control through the mobile. It automatically controls the light and fan and also control by the human, which give multiple accesses through the home or Industrial automation.

The below diagram consists of ultrasonic sensor, IR sensor, temperature sensor, LDR, Dc motor and transmitter which were linked with a display. It also consists of plc which is used to run everything in it.

7.ACKNOWLEDGMENT:

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8.CONCLUSION:

Thus by using this project, authorized person of any company can avoid the security problem and gives better safety.

9.FUTURE SCOPE:

Future scope of industrial automation would be good enough as every technology is involved with automation techniques. It is the use of various control devices such as PC's, DCs, an PLCs to control various operations of an industry without significant intervention from humans and to provide automatic control performance.

In industries, there would be a set of technologies that are implemented to get the desired performance or output, making the automation systems most essential for industries. On the other hand, industrial automation involves usage of advanced control strategies such as cascade controls, control hardware devices and other instruments for sensing the control variables etc.

10. REFERENCES:

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