Modern Home Automation

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Abstract: The demands of home automation in our , fan turn on of, light turn on of, automatic water speeding in garden, automatic find gas leakage also avoiding fire, automatic flip the water tank etc. day to day life are continuously goes on increase as like that automation filed also increases. In our project we are used pic18f452 microcontroller for controlling all home application as like automatic door opening, closing, fan turn on- off, light turn on-off, automatic water speeding in garden, automatic find gas leakage also avoiding fire, automatic flip the water tank etc. Because of this automation we are used sensor. Using this project reduce the human work as well as we are used a smart home .also one man can handle hole home because of automation. This project used in home as well as industries using this technology we are save the time.

1. Introduction:

Modern home automation technology that work to improve the safety, security, comfort, convenience energy saving and time saving within a home could be termed as home automation. Home automation includes various type of application as like automatic door opening closing ,fan turn on -off, light turn on-off, automatic water speeding in garden, automatic find gas leakage also avoiding fire, automatic flip the water tank etc .In our project we are used pic18f452 microcontroller for controlling all home application. Also we are used different type of sensor as like PIR, float sensor, temperature sensor, fire sensor, gas sensor, LDR sensor etc. Also for automatic gate opening used dc motor with gear far motor using this method we are used full smart home. Also this technology used for garden, loan in this used a solenoid valve for speeding water and soil moisture sensor for a purpose of understanding water requirement in garden. Next application is automatic fan turn on-off using temperature sensor, the temperature range is set at fixed level depend upon this range temperature goes on increases that time automatically fan is turn on as like that temperature goes on decreasing at set level automatically fan is turn off. This sensor also used for AC. Also for lamp on-off LDR is used, this sensor totally depends open on light for example in day sunlight is present so lamp is automatically off as like that in night sunlight is not available that time LDR dependent lamp automatically on. Using this we are save time, work also electricity but LDR is used in outside of the home. so for in home used a PIR sensor, working of this sensor is a man come in room that time automatically light is turn on as like that man goes to outside of the room light is automatically turn off. Another most important application is understands gas leakage also avoiding fire. This is possible using gas sensor and fire sensor, this sensor is sense the gas also fire and buzzer is turn on. Buzzer is output of gas sensor also fire sensor, this technology useful for a avoiding the accident of kitchen. Number of application and benefits of smart home we are used in our home.

2. Literature Survey:

[1]S.Shivajothi Kavitha1, S.Senthilkumar2: In this paper present an innovation a wireless gas leakage using gas sensor. This paper used for avoiding gas accident in modern home.

[2]E.Virginia Ebere1, O.Onaolapo Francisca2: In this paper present an innovation a microcontroller based water level sensor control system for a automatic fill up the tank without wastage of water.

[3]Kausic Sen1, Jeet Sarkar2,Sutapa Saha3:In this paper present an innovation a automated fire detection and controlling system using a heat detector sensor.

[4]SaurabhvS.Badave1,MakrandN.Kakatkar2,Moreshwar K.Dhani3:In this paper present an innovation a design and implementation of intelligent door opening and closing.

[5]Z. Ismael Rizman1, Kim Ho Yeap2, Nuraiza Ismail3: In this paper present an innovation a design and automatic temperature control system for electric fan using temperature sensor and pic.

[6]Kadam Shah1, Prakash Savaliya2, Mitesh Patel3: In this paper present automatic room light controller using PIR sensor also counter.
[3] Existing System:

In modern home automation system role of PIC microcontroller is very important. Depend upon the controller various operation will be done and using this no. of application will be used in our modern home. In this LM 395 three comparator are used also three water sensor used for upper water tank and lower water store tank. Another sensor as like PIR, LDR, Gas sensor, fire sensor, temperature sensor, Soil moisture sensor etc. All these sensor connection goes to comparator circuit and this output goes to microcontroller. For perform various operation driver circuit also relay are used and for the automation of gate dc motor is used.

4. Proposed System:

In our busy life automation is a most important part because of savaging work also time. This project work related to that fact mince home automation. In home automation various type of application are done as like automatic fan controller, automatic light controller, automatic fill up the water tank, automatic speeding water in garden, automatic fire alarm also automatic gas leakage alarm that type of applications are used in modern home. Because of this application will be done various type of sensor are used, as well as PIC microcontroller perform main role in circuit.

4.1 Light turn on off:

In Home Automation various type of Application are used as like, light automatically turn on off using PIR sensor. How PIR sensors work? It detects changes in amount of IR radiation, which is depends upon the outside characteristic and temperature of the objects in front of detector. It means if human come in range of detector it will detect movement because live body eliminate warm energy in form of IR radiation. So it will give you signal by light or alarm when any live object in front of PIR. That time light is automatically turn on, when human go away from PIR at that time light automatically turn off.

4.2 Fan turn on off:

Another most important application in home automation is automatic fan controller, in this used a heat detector sensor circuit. Heat detector sensor set at room temperature level at that time temperature goes on increasing above the set point, fan is turn on automatically. Same as temperature decreases below the set point, automatically fan is turn off. Using this automatic fan controller modern home automation will be done. Heat detector circuit also used for AC not only a fan automation, automation for ac is same as like set point is at room temperature same as temperature goes on increasing AC is automatically turn on and temperature goes on decreasing below the set point AC automatically turn off.
4.3 Automatic Door:

In Home Automation various type of Application are used as like, door automatically turn on off using PIR sensor. Working of PIR sensor is man comes in near the door, sensors sense the signal and door is automatically open. Same as man go away from door or away from PIR sensor gives the signal to door automatically turn off. Using this save the work of human as well as time.

4.4 Automatic Water Speeding In Garden:

In our life water is very important fact as well as tree life is also important so for achieve this goal and save the time we are used automatic water speeding technique. In this used soil moisture sensor for understanding moisture of soil depend upon this result signal go form sensor to solenoid valve. Those time solenoid valves automatically turn on and water start goes through pipe to sprinkler and automatically speeding in garden. This automation used to reduce the human work as well as time and water goes to tree at exact time.

4.5 Automatic Fill up the Tank:

This Automation used for fill the upper water tank. In this two water sensor are used one is attached to bottom level and another one is attached to top level of the water tank. Bottom level sensor used for indication of low level water mince that water will be present in low level of the tank that time lower sensor gives signal to motor, and motor automatically turn on. When goes on increasing a top level sensor this gives signal to again motor and motor will turn off. Using this automation we are automatically fill up the water tank and avoided the wastage of water. Overall operation depends upon microcontroller because water level sensor signal goes to controller and this gives command to driver circuit and automatically motor will be turn on or off.

4.6 Automation for Avoiding Fire:

Another most important application in home automation is automatic fire alarm, in this used a heat detector sensor circuit. Heat detector sensor set at room temperature level at that time temperature goes on increasing above the set point, alarm is turn on automatically. Same as temperature decreases below the set point, automatically alarm is turn off. Using this you are archive the safety of your modern home.

4.7 Automation using LDR:
Fig. 8. Automatic Lamp Using LDR

Light Dependent Register is one of the most important parts of smart home. LDR depend upon the light, so in day LDR lamp is off. Same as at night time sun rays is not available because of LDR is automatically turn on. This automation is used in our home garden light, this light is automatically at night time is on and in day time is off.

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6. References.
[2] E. Virginia Ebera(phd), O. Onaolapo Francisco(phd), "Water Level Control System", Lecturer, Dept. of computer science Nnamdi Azikiwe University, Awka, Nigeria.