Intelligent Minds in Order to Ensure the Security and Safety of Agriculture

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ABSTRACT

Safety and security are always a concern in constructing buildings because safety and security are not met when the time will come irreparable damage can happen. So with such problems in order to improve the immune systems depending on both domestic and industrial environments are designed. The intelligent control system using a process to identify and implement appropriate response measures can be developed to solve the problem. Another issue, especially in developing countries like Iran, suffer from a lack of consumer culture. With this device installed in various places such as home, office and ... We can make the bedding and the culture of consumption to help reduce energy consumption. The other human needs in this article is to consider the need for drip irrigation of gardens and greenhouses in homes in case of absence of an observer, Transportation costs are also reduced. In this paper, a suitable method for remote control of irrigation systems, fire prevention and control of entry and exit is also proposed. The sensors used in farm and construction requirements will be introduced and the results showed that the use of these sensors individuals and farmers are satisfied.

KEYWORDS: Agriculture, Electrical, Economy, Robotics, Sensor

INTRODUCTION

Safety Intelligent brain and system security controls all activities of Building or farming. Agriculture is one of the major consumers of electrical energy that most Consumption of this section is used to extract water and irrigation systems. On the other hand, nowadays supply agriculture power by power distribution companies are of the important challenges in country that requires a heavy investment and considerable time to realize it. On the other hand, more power saving in agriculture can be considered as increasing the capacity of existing facilities and less investment to expand the facilities [1]. We’ve had many victims Because of the play down to the simple subjects like steam pipes in their homes, experienced slow death and sleep forever or given that in urban population most parents are clerk and employee that they leave Their children at home for hours and go to work. In their absence Issues like their children’s security against the dangers such as fire and gas leak poisoning due to carbon monoxide and the next issue is that their children abuse home appliances for example put a bright light during the day for long hours. Since the factories and industrial workshops are often located far from fire and police stations, in case of hazards such as rubbry and fire what should automatically be done to reduce losses until the officers arrives.

Given that most places have gas piping in case of gas leaks if people be present in this place are suffering from poisoning or if you enter on that location as soon as creation of the slightest spark like pressing the switch occurs a big explosion in place that Causes irreparable financial damage. Also the majority of pipes pass underground that in the case fracture and slightly cracked pipes and water leaks gradual can destroy Infrastructure construction and housing in long time and provide a primary of their earth summit and inset. Do not diagnose and control these leaks in the event in early stages? Given that we cannot keep many expensive items in the residential and business premises like money in safe places what should we do for maintenance and keeping them safe from thieves? When we go on a trip can we check our home security? Whether or not someone has entered the house?

Deficiency capacity of existing facilities and the high cost of adding this facility are the concerns of the people and the authorities. On the other saving more power in agriculture can be considered as increasing the capacity of existing facilities and require less investment. Agriculture is one of the major consumers of electrical energy and water that most consumption of this section is used to extract water and irrigation systems. On the other according to growth of ICT tools and industrial automation, the use of these technologies has been more everyone’s attention in order to achieve greater productivity. In this regard, using technology, remote control and monitoring can take long step In order to optimize power and water consumption of agriculture [1].

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Thus the system can automatically control watering the trees and gardens. So that automatically the need for irrigation with checking the moisture, and controlling irrigation and just with a short massage can tell user all the problems mentioned and measures taken.

There are all problems and questions that we can offer solutions and answers as a series of security package that their installation in places such as homes, offices, shops, industrial and agricultural fields can be as a security notification in order to get permission to use it.

MATERIALS AND METHODS

If the house's flue is blocked monoxide gas scattered in the home environment according to the sensitivity of the smart minds that we have defined by gas sensor the risk status is active and automatically actions done such as alarm and cut off the gas and activate air valves and call the numbers already given to the intelligent brains.

Also if the places that use gas piping leaks and this brains identify the risk in early stages cut off gas and electricity and opens exhaust valve and calls to pre-stored numbers or send SMS with home owner and aware them of the danger. Or if a factory or industrial workshop that they are far from fire stations affected by fire and according to defined sensitive for security brains Identification the risk and active alarms and call to fire station and other numbers that we are defined and in the next step with enabling automatic water spray system that is installed in the ceiling can prevent the spread of fire.

If we consider a residential or commercial building, There are always many problems in this building for example the problems that this project has been considered there are many gases and smoke from the fire due to leakage of different pipes but sometimes people are not able to identify the sooty and think that all sooty is harmful and may bring irreparable events so immediately connect the fire fighter that maybe not need to their attention but in this project devise detect the smoke and if it’s necessary call a number that has already been determined and up to arriving a fire fighters acts the devise that is able to turn off smoke or fire until the Authorities arrive and do not waste the time and automatically extinguish the fire.

The system uses embedded sensors measure values of temperature, gas and smoke in the environment. If the ambient gas concentration is greater than the defined limit value the system react with doing some action such as cutting off the flow of gas, disconnect the electricity of environment to prevent explosions, the sound of the alarm system and Commissioning of ventilation systems for releasing the gas in the environment. Also if the ambient temperature and the amount of smoke in the environment is greater than the defined limit values. Also if the ambient temperature and the amount of smoke in the environment is greater than the defined limit values system deal with the happened situation as a fire and with doing some actions such as close the gas valve, activate the alarm system, fire extinguisher and call to phone numbers defined in the system before deals The fire occurred. Hardware set must be get on together that bring a system ability to show safe and efficient system. Hardware system is divided into several categories:

1 - Micro controller (the brain and intelligence systems)
2 - Sensors (temperature and moisture detection sensor and Diagnosis people sensor)
   A- Gas Sensor (MQ2)
   B- temperature sensor (Lm35)
   C- People detectionsensor (PIR)
   D- Module GSM (Sim900)
   E- display (LCD)
   F- Output ranging from LED and alarm

System is designed just with using the same components and several other pieces which includes a main circuit and several minor circuits that install in different areas of the building and controls at any moment that Whether the environment situation is consistent with pre-defined or not that what can be done if no match. Thus, a circuit is built for gas sensor that at first we discuss about it:

Circuit of gas sensor and solution of overcome the smoke and fire

At first is used the special smoke sensor for diagnosis the smoke and its type that it’s harmful or not. After much research identified the different sensors that the best of them is MQ2 family and in this family there are a lot of sensors that each of them is useful to solve some of the problems, after reading their data sheet this sensor are selected. In fact, sensors in a circuit act as a sensor and feel the smallest changes and transfer them to the central processing system or the brain that are responsible for decision. In other words, in this project sensors after detecting the position sends a voltage proportional to the sensed condition to the micro or the system (brain) and the micro takes an action according to the program has already been depending on the type of smoke. In this case, send the amount of profit and the percent via the GSM module serial and it also send SMS by the number of predefined and if the user confirms and sends send text messages other proceedings such as
turn the meter off by relay and activate the ventilation system in case of fire alarms and sprinklers attempted to solve the problem that now installed in many buildings (sensor driver circuit is shown in (Figure1).

The advantages of this system are knowledge of user from the actions taken and we can control the condition whenever needed with sending a massage and check the moisture content and smoke. These sensors often have fix and long life. It’s observed that they have protection like network to prevent fire or burst. Also it can overshadowed a big identify range. The use of these sensors is the industry gas leak. And detecting gases such as LPG, butane, propane, methane, hydrogen, and also smoke have been considered, is the use of this type of sensor.

**Introduction of orbit tree Irrigation and people controls**

How irrigation and people controls and its implementation is the same as before In this section, humidity and temperature that is embedded in the soil is checked temperature and humidity by the sensor every moment and sends to the user the amount and percentage via SMS which is sent at anytime and anywhere it is, with just sending a text massage and it also can be displayed on LCD and if it is confirmed and the special word which has been specified by the user, is sent ( the massage is sent through a texting a massage by the electric tap which is located at the water canalization pass, the water tap is connected and irrigation went on till the humidity is reached at the special limit, or we can also irrigate by delineating the time of irrigation automatically. After that the water is off via the electric tap so the water use is economized and the burden of irrigation is off of the user’s shoulder. Even in those times which the sensor doesn’t declare the need for water the user can do the irrigation. All of these is done through a circuit and a program tested before, for several times. All these features can be proved.

Intelligent control of irrigation has been accomplished for the first time via weather forecasting systems in California. Today most of industrial countries all over the world use intelligent systems for optimization in the use of energy[2].

The conventional systems of agricultural irrigation has some casualties in the amount of water use and accordingly in electricity and in the quality of crop which there is always a chance of automatically control and all time supervision by using particular and industrial control systems[3],[4].

Agricultural mechanization has been started in different countries in different way years ago but most of them has not used the automation capabilities and current networks[5].

At the safety part and recognition of people entrance PIR sensor has been used (Figure2). This sensor works by recognition of every bulk, whether human or animal and giving its output area to the micro, the micros send the appropriate order according to the previously gathered data.

These kinds of sensors are intended for recognition of every move, eyeshot area is 95 degrees.

Ground rules of this device are based on the thermal energy taken from the milieu and piroelecteric impress. Some crystals have been utilized in these sensors which have this property.

Piroelectric impress resides in elements that produce a voltage in the exposure of thermal changes. But one of the characteristics of these kinds of sensors, which is also variable according to the amplifier orbits designed in these sensors, is recognition of creatures from distance.

This sensor is also utilizable in different uses, for instance, a man who enters an aisle send out the light on massage and all the lights will be on until he leaves the aisle. So by activating this sensor it will inform the user of people entrance by sending a message to them so on travel you can easily control the security of your building or any other place.
RESULTS AND DISCUSSION

According to the foregoing shortcomings and introduction of its solutions, the shortcomings can be easily eliminated by using sensors which are found in markets and the place can be watched, controlled and demanded orders can be sent by using GSM modules. So all this is done only by using a GSM modules and sending a text massage, only by putting a SIM card on the modules and connecting it through serial with the micro and decoding the sent massages it is able to accomplish the orders. Therefore with this device:

1- There is no need to worry about smoke, fire or any combustible material especially when you are in travel, because this device will automatically recognize the smoke, do the necessary actions and will protect the building.
2- By using this device, it will automatically inform the owner of the building condition.
3- Irrigation will be completely automatically so there is no need to footwork and spending time for irrigation also there is saving in amount of water use because the irrigation will just occur in the requisite time so the area is always green in the least expense.
4- The circuit is designed in such a way that can add many other parts. For example can be used for turned on and off the hallway lights at entry time. In fact with this device you can control all parts of the building, including heating and cooling systems and informed the residents of the building in the event of problems.

Using this scheme can be saved many of the costs and energy and prevent their loss. This paper has been implemented and there is no difficulty in implementation.

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