Hanging Robo For Safety And Security

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Abstract: Many safety features available for industry and offices, but they are costly to achieve the result hence we are going to develop such a robo having many applications. Now a day all industries and offices take many efforts to provide high alert security and safety against thefts and other accidental disasters. Machineries used in such bigger industries are very costly and sensitive too. Also many confidential documents of the companies, which also need to be protected against thefts. To overcome these problems we are developing safety system, which provides alert as well as required actions. By combining these security and safety system together we are providing cost effective high alert system.

Keywords: ***Raspberry Pi, Hanging Robo, Safety System, Security System, Arduino Uno, Modern technology.***

I. INTRODUCTION

Now a day all industries and offices take many efforts to provide high alert security and safety against thefts and other accidental disasters. To provide high alert security in bigger industries many cameras are required depending upon area of the industry. These security cameras are used to provide 24hrs live streaming within the industries. So as the area of industry increases required numbers of security cameras are also increases. This increased in the hardware will result in more cost as well as more complexity of the system. To overcome this, instead of using many cameras we are developing a system which provide high security using only single 360 degree camera. These industries are also investing more money in safety systems against various emergency situations such as fire disaster, gas leakage etc. depending upon the type of industries. Even after investing more money on these safety systems, they only provide alert instead of providing required solution in case of such emergencies. Hence to overcome these problems we are developing safety system, which provides alert as well as it takes required actions. By combining these security and safety system together we are providing cost effective high alert system. This project based on RASPBERRY PI and ARDUINO controlled system for safety and security purpose robo. This robo runs on hanging track and inspect area with video recording and also control machinery if any danger or accidental problem occurs. The robot has sensors for detecting gas leakage and fire extinguisher. The MQ2 smoke sensor is sensitive to smoke and following gases are, LPG, Butane, Methane, Alcohol, Hydrogen. And Heat sensor used to detect ambient air temperature. Automatically send the sensor information to more number of places using Wi-Fi module. The system also provide any abnormal change in the parameters give alert to the industry owner and the guards in such danger situations through a text message. This type of robot easily working in dangerous place.

II. LITERATURE REVIEW

The Raspberry Pi controller processes the camera input and detects fire using heat signatures. By using image processing method, the report is automatically generated and sends to the person immediately after the fire is detected in any part of the frame using Wi-Fi/GSM. [1]. Firefighting is an important and hazardous job. A fire fighter can be able to extinguish fire quickly, averting the damages and reduce losses. Technology has joined the gap between firefighting and machines using some effective method. The purpose of this thesis is to establish a system that can detect fire and extinguish it in the shortest time subject to a few effective factors [2]. This paper presents about developing a live video streaming robot controlled from the website. Designed the web, controlling for the robot to move left, right, front and back while streaming video. As we move to the smart environment or IOT (Internet of Things) by smart devices the system developed here connects over the internet and can be operated with smart mobile phone using a web browser [3]. The existing system of fire alarms systems alert the occupants of a building or home by the sounding an alarm which is loud enough for everyone in the building to hear in order to evacuate. These alarm system are effective only if the fire alarm can be heard; otherwise if no one is near the home or building, the fire or smoke in building or home would go

unnoticed. Our project differs from the existing system by able to send data to the fire department through sensor using IOT[4]. In this the aim of the project is to provide wireless LPG leakage monitoring system for home safety and industries. This detect the leakage of the LPG and alert the customer about the leakage and control it. And alert using GSM module[5].

III. SYSTEM OVERVIEW

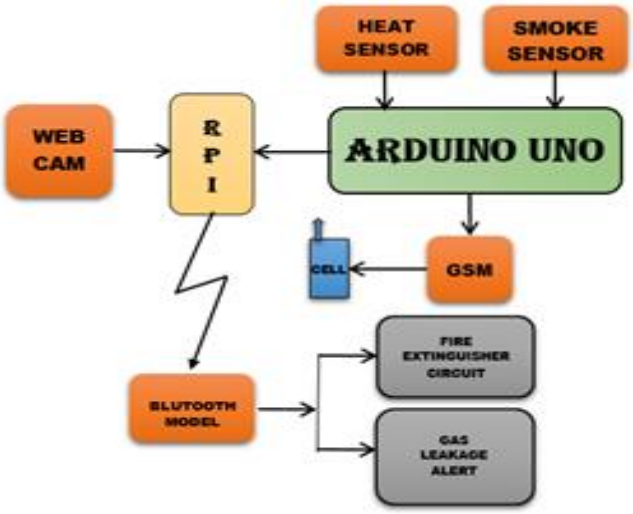

Figure: Block diagram of system

Many safety features available for industry and offices, but they are costly to achieve the result hence we develop such a robo having many applications. This robo runs on hanging track and inspect area with video recording and also control machinery if any danger or accidental problem occurs. For developing this project we are mainly using Raspberry Pi as a main processor and arduino uno as a controller. Our system provides a security as well as safety to the industry. So as per the objective the hardware of our system is also divided into two major parts. i.e. first hardware to provide security and second hardware to provide safety.

So a hardware having an objective to provide security mainly includes Raspberry PI, two web cameras i.e motion detector web camera and a normal web camera. In this hardware the one web camera is directly interfaced with a Raspberry pi. This web camera is placed on a robo which is running over a hanging track. This track is hanged to the slap of the entire industry where actual machinery and all the workers are working. This camera keeps track on entire industry for 24 hours to provide security against the thefts, fire disasters and harmful gas leakages in a medical or any other industry. We are using another web camera with a motion detector sensor which provides a safety against thefts, important documents or file stealing and also to secure the overall owner's cabin as well as other server rooms. Now we will talk about another half part of our project whose purpose is to provide safety against fire disasters and in case of harmful chemical gas leakages in medical or any other industry. In such cases two sensors which we are using i.e. heat sensor and smoke sensor which senses any danger situations so according to that sends a signal to the fire extinguisher or gas leakage alert system which provide safety to the entire industry. Our safety system also alert industry owner and the guards in such danger situations through a text message.

IV. LIMITATIONS OF EXISTING SYSTEM

From the above made inferences of various papers, there are quite a few drawbacks of the already existing system here as follows:

1. Small surveillance capacity.
2. Poor reliable in detection.
3. Slow response time.

V. ADVANTAGE, APPLICATIONS

5.1 ADVANTAGES

1. The main advantage of the system is to do surveillance at more real time streaming.
2. By high resolution camera and wide angle camera we can also stream video of wide areas. All the equipment can be checked and updated with advanced technology so that no error occurs while streaming.
3. Safety system not only provide alert as well as it takes required action.
4. The safety system is based on the Modern technology so it reacts quickly and minimises losses due to fire.

5.2 APPLICATIONS

1. System can be used for real time safety and security. A security guard walking the perimeter of your site can only be in one location at once and Sees only one direction. A Webcam placed on the hanging robo which is run on the track and monitors remotely have a wider field of view so one person live monitoring the video can see more and react quickly.
2. Fire extinguisher system is more advanced and can be used for industries as well as home safety.
3. The hanging robo principle can be used to implement sky-bus.

VI. CONCLUSION

The proposed robot for live video streaming has lot of scope in the areas where human cannot reach. The system can be accessed from anywhere as we connect through the internet. Further more sensors, including temperature, pressure, environment monitoring and many more features can be included. System can be further modified as per the requirement. Robotics has good future scope with artificial intelligence and recently advancing deep Learning techniques. System can be used for real time safety and security. This safety system, provides alert as well as

required actions. As it provide aleart through text message, owner of company can take further more required action if necessary. Fire extinguisher system is more advanced and can be used for industries as well as home safety. The hanging robo principle can be used to implement sky bus. system which provide safety to the entire industry.

VII. ACKNOWLEDGEMENT

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