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LONG RANGE MOTION DETECTOR FOR INDUSTRIAL & SECURITY PURPOSE

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Abstract:

The various safety risk factors are endless in many aspects of Industrial Work and defense activities; construction safety management includes a very broad range of topics. It is hard to give a very clear definition and scope for safety management. In this project machine learning based potential safety hazards are usually identified based on long range motion detectors experts' or managers' experience and eliminated through necessary preventive actions. In the latter stage, accidents are prevented by monitoring workers, machinery and the whole environment on site. Never the less, in the process of exploring more effective safety management methods with enhanced safety concept based on machine learning are adopted in this project. Hence based on the application range of different kinds of sensor- based technologies in the field of defense The sensor-based technology applied to construction safety management consists of sensor-based location, vision-based sensing, and wireless sensor networks, etc. The combination of multiple sensor-based technologies basically meets the technical requirements in the safety management of industrial and defense securities.

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I. INTRODUCTION

Security systems rely on smart and intelligent sensor technologies and, hence, sensors have become an essential part of military systems. This article covers some latest sensors used in military applications. Modern military and defense environments require proven, reliable and scalable technologies. Sensors are a critical part of the technologies as these provide solutions to the whole

defense ecosystem, including complex controls, measurements, monitoring and execution. Military and defense systems include drones, spacecraft's, missiles, military vehicles, ships, marine systems, satellites and rockets. These systems work in the harshest of environments during normal as well as combat operations. Internal and external security systems rely on smart and intelligent sensor technology for surveillance, intelligence and combat operations. Thus, sensors have become an integral part of military systems and the performance needs of all military vehicles, equipment and related systems. Sensors are used in flight controls, propulsion, environmental monitoring, weaponry controls, indicators, and communications and so on. You can find sensors in various security systems, explosives detection systems, chemical warfare, crime detection systems, intrusion detection systems and civil establishments, among others. Sensors are also used in battlefield surveillance systems for the conduct of modern warfare. These are deployed on land, aerial platforms, in space and underwater, to keep a 24×7 watch over a particular targeted zone. Nowadays the AI systems are everywhere, and the uses related to them are multiple. With AI systems that works on Big Data analysis is possible to know what candidate during an election, a person votes or what are the main interests of a person. In industrial plants and installations, control systems are used to monitor and control processes. Control Systems, whether a conventional Control Desk or a Computer/PLCs System with SCADA or a Distributed Control System (DCS), provides a human-machine- interface to monitor and control the plant equipment and processes.
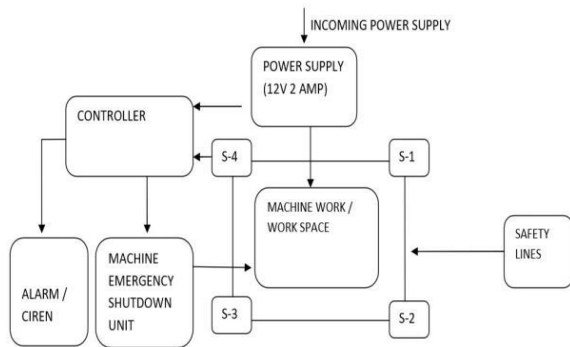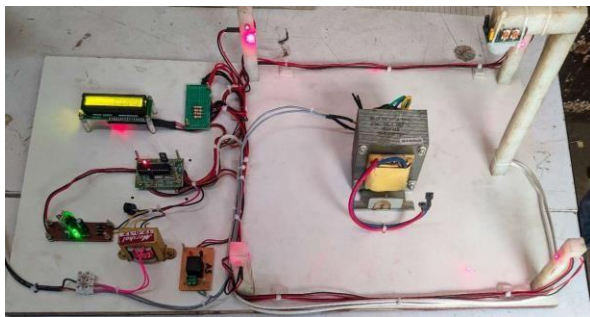
II. SYSTEM DESIGN

Fig.1 block diagram

III. PROPOSED MODEL

The 240V Power Supply is given to Long Range Motion Detector. Then we used a Transformer to convert the AC signal into low power AC signal. where the 240v AC signal is converted into 12v AC signal then we have used a bridge rectifier that convert the AC signal to DC signal then the DC signal is applied to the voltage regulator 7805 positive series voltage regulator that convert pulsating DC into pure DC i.e. 5V 2A DC supply. Then it is applied to the controller where the system turns on and it shows the massage as "Calibrating Sensor" on the LCD screen, and the sensors will start scanning for any input from outside. and the sensors also scans the safety lines for any input. If there is any input to the sensor or

any unauthorized person comes in the restricted area then the sensor will detect it using AI programming and the data is send to the controller and the controller will give the input to the machine emergency shutdown unit where we have used the relay module to trip the mains of the machine to shut down the machine immediately and also provides output to the alarm or siren unit for alerting the whole unit by the alarm. and display it on the LCD Display from where the entry has been taken for alerting purpose.

IV. RESULTS

- Area scanning time of the PIR Motion sensor > 2 min for non-stable moving object in area
- Area scanning time for PIR Motion sensor <
  30 Sec && > 5 Sec for stable nonmoving objects in the room
- Range of the Laser beam sensor – 10 Mtrs used in our hardware modal

- Detection time < 0.5 milli Seconds
- Alert type and intensity of the buzzer to be protected to alert the security person – Depends on the site of installation
- Cost of system per acre of land w a s approximately equals for 35 Thousand including battery backup.

II. CONCLUSIONS

Through this project we conclude that we can

develop an AI Based Long Range Motion Detector For Safety Applications. The AI (Artificial intelligence) and the ML (machine learning) are growing up day by day. Today there are a lot of systems that uses these types of technologies to do tasks of every nature, from medical to military, from agriculture to industries. Also robotics uses ML to train the machines. But if on one side the AI systems are growing up to do "good tasks" often they are trained to do also "bad tasks" that can influence the concept of security not only digital but also physical and political.

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