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Industry Automation and Safety Control

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***Abstract*: In our day-to-day life Security and automation is a prime concern. The access to home and industrial automation and security system design is almost consistent nowadays. In this paper, we have demonstrated to increase these standards by bringing together new design techniques and developed a low cost home and industrial automated security systems. Everyone wants to be as much as protected as possible. The structure of simple hardware circuit accepts each one user to benefit this wireless home security system with Gas sensor, and Main Fuse Failure Detector at Home & Industries.**

***Keywords*: industry automation**

1. Introduction

Automation can be defined as the technology by which a process or action is performed without human support. For fulfilling device likely machinery, boilers and heat treating ovens processes in factories, switching on telephone networks, aircraft, steering and stabilization of ships and more action and vehicles with least or compress human interface Automation or automatic control, is the support. Some processes have been absolutely automated. By different factors as well as mechanical, hydraulic, pneumatic, electrical, electronic devices and computers, usually in combination automation has been accomplished. Difficult systems, such as modern factories, airplanes and ships frequently use all these connected techniques. Automation is an approved for faster and precise operations as correlated to manual operation. This paper provides a mean of simple yet effective fixed type of automation for sorting the products. Two products identical in shape and size are sorted out automatically on the basis of metal and nonmetal. LED and photo transistor arrangement is used for counting of perfect jobs. It is employed usual flat belt conveyor in order to utilize gravitational force as a driving force for feeding the products. Arduino is used for supervising the sorting system by applying program or coding.

A. Components of the system

- *Photo-electric sensor:* The system consists of total 1 proximity optical sensor or photo-electric sensors, used to detect the presence metallic object of. IRD 183 diffuse type photo electric sensor is used in our project. Variable frequency drive:
- *Conveyor belt:* There are 2 conveyor belt used in this system one is pre-feed conveyor and second is main conveyor. A conveyor setup is a probable piece of mechanical schedule that moves materials from one part to another.
- *DC geared motor:* Geared DC motor plays very important role that it helps to push box. The

Clockwise and anticlockwise direction of diverter is carried out by this motor. The shaft of this motor is spread out by a metal strip which will advance the objects. DC geared motor used in project works on 12V DC having RPM 30.

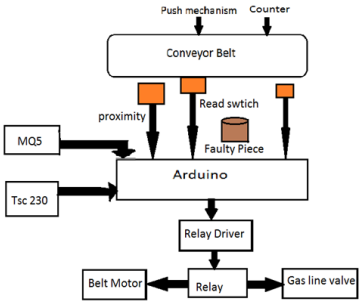

Fig. 1. Block diagram

B. Block diagram description

This system consists of a color sensor, Arduino section. Color sensor identifies color and gives serial output of black white value to the Arduino. The shading sensor uses a TCS3200D at its nature and they can be digitally interfaced with the Arduino and the shading that is before the sensor is been recognized by the Arduino by a reasonable calculation that is utilized for distinguishing the hues. The measure of the parts that are stirred up to frame any unmistakable this present reality hues are comprehended by the Arduino by interfacing the shading sensor with our Arduino. The shading sensor appropriate a TCS3200D at its character and they can be digitally interfaced with the Arduino and the shading that is before the sensor is been identified by the Arduino by a reasonable calculation that is apply for differentiating the hues. And for detection of gas leakage the gas sensor is used to prevent the accident. The Grove - Gas Sensor (MQ5) module is suitable for gas leakage detecting (in home and industry). It can observe LPG, natural gas, town gas and so on. Based on its fast response time. Measurements can be taken as soon as possible. Also the sensitivity can be accommodate by the potentiometer.

C. Color sensor

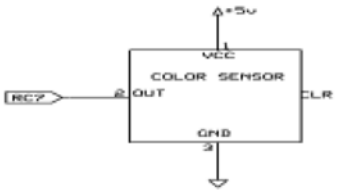

Fig. 2. Color sensor

This current phenomenon hues are conceive by the Arduino by interfacing the shading sensor with our Arduino. The shading sensor promotes a TCS3200D at its character and they can be digitally interfaced with the Arduino and the blacken that is before the sensor is been accepted by the Arduino by a reasonable calculation that is utilized for differentiating the hues. Fundamentally hues are said that it enclosure from three guardian parts as "RBG" feeling abnormal??? It's only Red Blue and Green, the huge number of hues that design the world is fundamentally the blend of the three. The measure of the parts that are stirred up to frame any unmistakable this present reality hues are comprehended by the Arduino by interfacing the shading sensor with our Arduino. The darken sensor apply a TCS3200D at its response and they can be digitally interfaced with the Arduino and the darken that is before the sensor is been accepted by the Arduino by a reasonable calculation that is utilized for distinguishing the hues.

D. Gas sensor (MQ5)

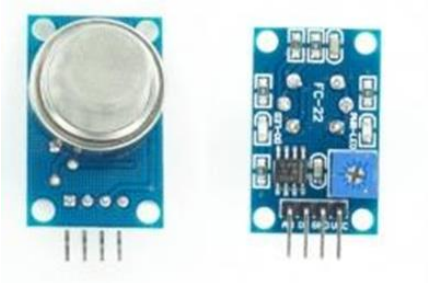

Fig. 3. Gas sensor (MQ5)

A gas sensor is an apparatus which finds the existence of gas in an area. This sensor collaborate with a gas to measure its converges. Each gas has a different breakdown voltage i.e. the electric field at which it is ionized. Sensor analyze gases by measuring these voltages. The combination of the gas can be resolved by measuring the current discharge in the device. The MQ5 gas sensor detects the existence of different gases such as hydrogen, carbon monoxide, methane and LPG feeding from 100ppm to 3,000ppm. When a gas combine with this sensor, it is first ionized into its established and is then consumed by the sensing element. This adsorption builds a potential difference on the element which is conveyed to the processor unit through output pins in form of current. The gas sensor module be found in of a steel exoskeleton under which a sensing element is housed. This sensing element is apply to current over connecting leads. This current is known as heating current concluded it, the gases oncoming close to the sensing element get ionized and are fixed by the sensing element. This adjustments the resistance of the sensing element which alters the value of the current going out of it.

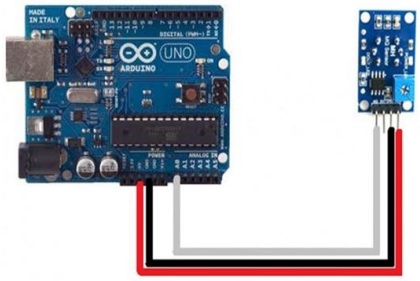

Fig. 4. Arduino Uno

2. Conclusion

The sensor IC TCS3200 which is shading sensor, it determines the boundary on stable reaction in different daylight action. The framework is working with open circle. If shut circle control is fused superior determination can be accomplished. The framework reactions are a tad bit slower than anticipated. The gas detection is also done by the mq5 gas sensor but the output will be got correctly it contains some error for operation.

3. Future scope

We can sense multiple color by color sensor. Using extra hardware, we can sort more objects. We can use a Robotic arm to pick and place the object. By using counter we can count the number of objects.

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