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Smart Inventory System with AppiFii

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***Abstract*: In the current scenario, most of the manufacturing industries are mostly focused on the automation of production process. There is hardly very less industry available which gives priority to the automation of inventory and other processes. To overcome the challenges that occurred in the automation of inventory control, we have proposed a system that will control inventory automatically. It also provides real-time information about the quantity of raw materials. The main focus of the current inventory management system is at the output level of production which includes recording data, tracking products. However, to control the usage of man and materials within the industry we require a system which works at the production level itself rather than the output level. This can be achieved with the help of end user requirement details**

In our proposed idea we are trying to manage the inventory of raw materials as liquid. So for this purpose the real time data of the liquid i.e, temperature and quantity is sent as an alert on the application so that the production process can be carried for that amount of liquid.

***Keywords*: Inventory management, supply, production**

1. Introduction

The Project "Smart Inventory System with APPIFII" is mainly focused on reducing the manpower required to operate the inventory of the industry & reducing the unnecessary wastage of energy. For achieving the both, we are going to introduce a system which will automatically control the inventory of the industry & automatically adjust the intensity of the light equipment like LED etc., according to the intensity of light available in the outside atmosphere.

The system which we are going to introduce will provide real-time information of the amount of your raw material is available in inventory. The information of raw material is developing in the form of various level these are (1) Maximum Level (2) Optimum Level (3) Critical Level.

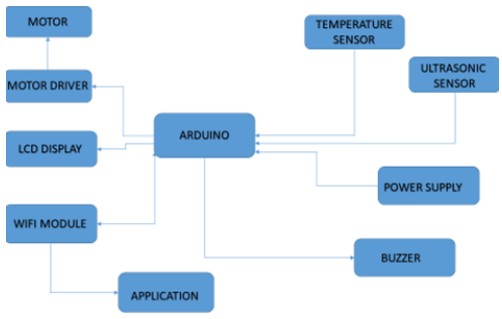

Fig. 1. Block diagram

As the level of raw material reaches to the particular level then the information will be displayed on the LCD screen and also on the app.

The fig. 1. represents the block diagram of the project.

It consists of an ultrasonic sensor, a temperature sensor and a buzzer interfaced with the input of an Arduino UNO. The output of the Arduino is then interfaced with the motor, Wi-Fi module and a display.

2. Working

In this project the raw inventory is divided into three levels i.e. maximum, optimum and critical level. The basic controlling unit work on a principle of Arduino as the sensor detects the level it will be displayed on LCD connected through the Arduino. There are two pumps, pump 1 is placed in raw inventory and work as a conveyer segment to fill production inventory. Now as the Arduino receive signal through sensor it will send a command of message generation of the situation of material to Wi-Fi module and as it gets the signal it will automatically send an alert to receiver or controller to respond at the situation The second part of our project involves the concept behind reducing the power consumption in the industries. The streetlight will vary their intensity automatically according to the intensity of light in the surrounding. A photo resistor (light dependent resistor) is used to sense the atmospheric light and the analog value is fed to the Arduino and the output is displayed in the LCD.

Fig. 2. Experimental working

3. Technical description

1. Arduino UNO: It is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a

reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

2. Wi-Fi Module(esp826): The ESP8266 WiFi Module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor.

3. Ultrasonic Sensors: Ultrasonic sensors measure distance by using ultrasonic waves. The sensor head emits an ultrasonic wave and receives the wave reflected back from the target. Ultrasonic Sensors measure the distance to the target by measuring the time between the emission and reception.

4. Liquid Crystal Display (LCD): It is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals.

5. Temperature Sensor (DS18B20): One-wire temperature sensors like the DS18B20 are devices that can measure temperature with a minimal amount of hardware and wiring. These sensors use a digital protocol to send accurate temperature readings directly to your development board without the need of an analog to digital converter or other extra hardware.

6. LDR: An LDR is a component that has a (variable) resistance that changes with the light intensity that falls upon it. This allows them to be used in light sensing circuits.

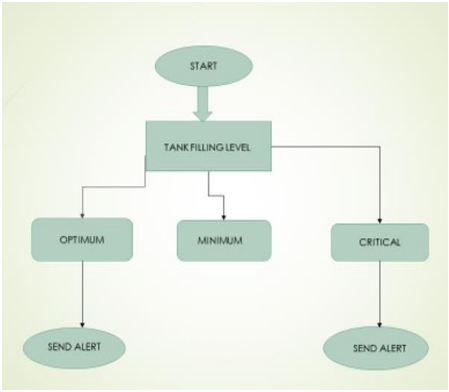

Fig. 3. Flowchart

4. Conclusion

The proposed design is to provide industrial automation and is useful for monitoring the inventories raw and final both from any distance. An arduino is used which monitors the components according to the given message, with the sensed information sent from the sensors. This paper discussed the working of an Automatic Industrial Light.

5. Future scope

Automated factories and processes are too expensive to be rebuilt for every modification and design change – so they have to be highly configurable and flexible. To successfully reconfigure an entire production line or process requires direct access to most of its control elements – switches, valves, motors and drives – down to a fine level of detail.

Manufacturing will still need people, if not so many in the factory itself. Automated machines need people to design, program and service them.

Safety continues to be an ever important aspect of industry's drive towards further automation. No matter how automated a factory system is, all production grinds to a halt when injuries occur on the plant floor.

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