Industrial Automation Using Bluetooth Module

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ARTICLEINFO

ABSTRACT

This system presents a detail analysis of Bluetooth based industrial automation. This system is based on Arduino kit and Bluetooth module. Bluetooth which is used as data transmission is at its high rate. Automation in this field is mandatory to ensure the safety of the workers. This system also uses the android app for controlling operations of the elements. Due to android app distance is maintained from big machines, so there is no need to go closer and make the operations. Pneumatic cylinders will co-ordinate to the system as well as give the accuracy in operation of crushing. Inductive sensors carried out process of sorting of metal and non-metal efficiently. System is totally based on correct combination of conveyer, inductive proximity sensors and pneumatic cylinder. On conveyer there is an input of both metal as well as non-metal material. Then system will sort it with the help of sensors and sorted metal will be pushed out in the crusher box to crush it. Once metal can drop into box then it will be crushed and collected in the bean.

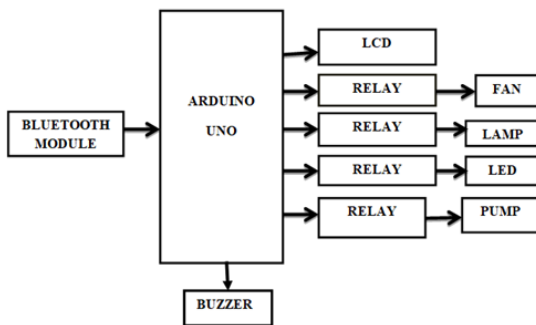**Keywords -** Arduino, Arduino IDE , LCD, BLUETOOTH, RELAY.

I. INTRODUCTION

The main purpose of "Bluetooth Based Wireless Device Control for Industrial Automation Using Arduino is to get knowledge of design and fabrication. The design is an environment friendly and uses simple properties such as mechanical single conveyer and automation properties which uses microcontroller and sensor. The design is done so that knowledge of designing, mechanism increased. In order to reduce the waste, system created the can crushing system that will reduce the volume of aluminium cans by approximate 60-75%. This System saves space of recycling. in today's life most of the food items are packed in cans and metal containers. Cold drinks and beverages are also packed in cans. Storage is often a problem and cans consume lot of space, thereby increasing total volume of waste. The transportation cost is also high for moving such a huge number of cans. Thus this system will help to recycle and maintain eco-friendly environment. This system involves the process of

designing the different parts of the crusher system considering the forces and ergonomic factor for people to use. This system mainly about generating a new concept of can crusher that would make easier to bring anywhere and easier to crush cans. After design has completed, it was transformed to its real product where the design is use for guidelines. The most frequent use of aluminium is in beverage cans. Since we use aluminium so frequently it is important to get as many uses out of it as we can. Recycling aluminium not only helps to keep the landfills clear but it also saves energy. The aluminium can today is the most recycled of any beverage container. Aluminium is durable, flexible, lightweight, strong and Recyclable. most of aluminium ever produced is still in use. Aluminium building components can be repeatedly recycled back into similar products with no loss of quality and reliability.


II. BLOCK DIAGRAM EXPLANATION

A. ARDUINO UNO

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type B cable. It can be powered by the USB cable or by an external 9-volt battery, though it accepts voltages between 7 and 20 volts. It is similar to the Arduino Nano and Leonardo The hardware reference design is distributed under a Creative Commons Attribution Share-Alike 2.5 license and is available on the Arduino website. Layout and production files for some versions of the hardware are also available. The word "Uno" means "one" in Italian and was chosen to mark the initial release of Software. The Uno board is the first in a series of USB-based Arduino boards; it and version 1.0 of the Arduino IDE were the reference versions of Arduino, which have now evolved to newer releases. The ATmega328 on the board comes preprogrammed with a boot loader that allows uploading new code to it without the use of an external hardware programmer. While the Uno communicates using the original STK500 protocol, it differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it uses the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter.

B. LCD

A liquid-crystal display (LCD) is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals combined with polarizer's. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low

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information content, which can be displayed or hidden. For instance: preset words, digits, and seven-segment displays, as in a digital clock, are all good examples of devices with these displays. They use the same basic technology, except that arbitrary images are made from a matrix of small pixels, while other displays have larger elements. LCDs can either be normally on (positive) or off (negative), depending on the polarizer arrangement. For example, a character positive LCD with a backlight will have black lettering on a background that is the color of the backlight, and a character negative LCD will have a black background with the letters being of the same color as the backlight. Optical filters are added to white on blue LCDs to give them their characteristic appearance. LCDs are used in a wide range of applications, including LCD televisions, computer monitors, instrument panels, aircraft cockpit displays, and indoor and outdoor signage. Small LCD screens are common in LCD projectors and portable consumer devices such as digital cameras, watches, digital clocks, calculators, and mobile telephones, including Smartphone's.
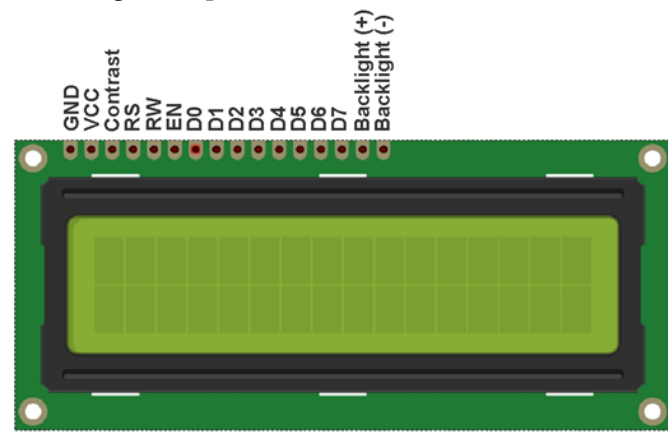

III. ADVANTAGES

Bluetooth is a wireless technology that is not dependent on wires, cables, and codes. This is considered a key advantage of Bluetooth. It consumes low power and energy. It can be connected through walls also with any obstacles

IV. APPLICATION

- In laptops, notebooks and wireless PCs
- In mobile phones and PDAs (personal digital assistant).
- In printers.
- In wireless headsets.
- In wireless PANs (personal area networks) and even LANs
- To transfer data files, videos, and images and MP3 or MP4.
- In wireless peripheral devices like mouse and keyboards.
- In data logging equipment.
- In the short-range transmission of data from sensors devices to sensor nodes like mobile phones.

V. RESULT
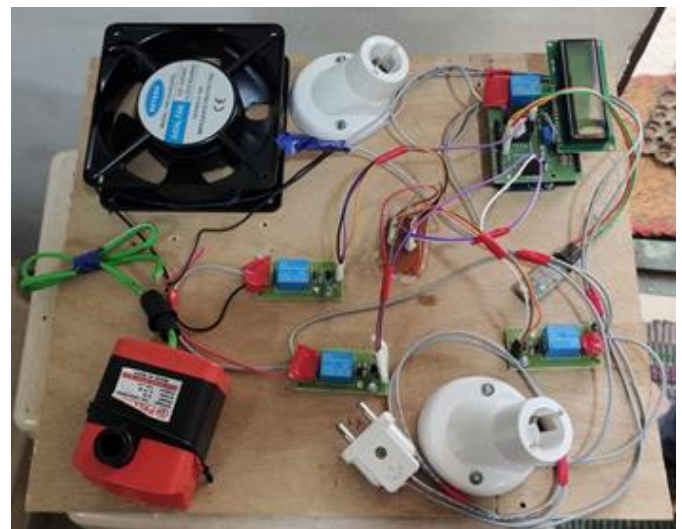
VI. CONCLUSION

With the knowledge of new techniques in Electronics' we are able to make our life more comfortable. One ach application of electronics is used in "Industrial Appliances Controlling using Android Mobile via Bluetooth the approach we followed and which is explained in this project report is novel and has achieved be target of Home

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Appliances Controlling using Android Mobile via Bluetooth" satisfying user needs and requirements. Home Appliances Controlling using Android Mobile via Bluetooth is automatic versatile system. It can be implemented in industry, home, agricultural field, remote and hazardous applications. It provides the flexibility & system reliability with low cost a well as less maintenance. It provides remote access to the system to deliver service at any time of the day. With this system, we can control as well as monitor the devices at remote location. Hence, we can conclude that the required goals and objectives of our project have been achieved

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