DESING AND FABRICATION METAL AND NON-METAL SEPERATING MACHINE

Mr. G MOHAN KUMAR [a*] , AJAY S[b], ARULKUMAR S[c] , CHINNARASU P[d]

[a*] *PG Scholar, Department of Mechanical Engineering, Gnanamani College of Technology, Namakkal, Tamilnadu, India*

[b,c,d] *UG Scholar, Department of Mechanical Engineering, Gnanamani College of Technology, Namakkal, Tamilnadu, India*

ABSTRACT

In our paper "Desing And Fabrication Metal ,Non-Metal And Magnetic Seperating Machine" beings with an introduction to material Inspection, it's various applications. The sensors are used to measure the material dimensions and this signal is given to control Unit.

The control unit gives the appropriate signal to the pneumatic cylinder. The pneumatic cylinder is used to collecting mechanism of the improper dimension materials. The inspection conveyor is very useful for material handling in modern engineering industries. The motor is used to drive the conveyor. The materials are transferred from one place to another place by using conveyor. In this top of the conveyor, sensors are used to measure the dimension. This system gives smooth operation and smooth movement of the belts to the jobs at required time.

This is a very efficient instrument for checking the dimensions like length, breadth, height etc., to be used in modern engineering industries. The manual efforts can be completely avoided by using this modern equipment. It also reduces the inspection time and manual inspection errors. If the work piece is defective, the pneumatic cylinder placed next to the sensor will be actuated to remove the defective work piece.

KeyWords :- *Recycling , Metal Seperator.*

INTRODUCTION

This is an era of automation where it is broadly defined as replacement of manual effort bymechanical power in all degrees of automation. The operation remains an essential part of the system although with changing demands on physical input as the degree of mechanization is increased. Degrees of automation are of two types, viz. Full automation.

In semi automation a combination of manual effort and mechanical power is required whereas in full automation human participation is very negligible.

Need For Automation Automation can be achieved through computers, hydraulics, pneumatics, robotics, etc., of these sources, pneumatics form an attractive medium for low cost automation. The main advantages of all pneumatic systems are economy and simplicity. Automation plays an important role in mass production. For mass production of the product, the machining operations decide the sequence of machining. The machines designed for producing a particular product are called transfer machines. The components must be moved automatically from the bins to various machines sequentially and the final component can be placed separately forpackaging. Materials canalso be repeatedly transferred from the moving conveyors to the work place and vice versa.   Quality Control and Inspection are the most important things in factory design. Automation plays a vital role in mass production of a product, the machining operations decides the sequence of machining. The machines designed for producing a particular product are called transfer machines. Conveyor Automation is a specialized activity for a modern manufacturing concern. It has been estimated that about 60-70% of the cost production is spent in material transferring activities.

PROPOSED SYSTEM

The system will get the input through the dust collecting person through switches and sends signal to the Micro controller makes the realy to rotate conveyor belt. When the belt starts rotating clockwise the dust bin's lid is automatically closed, simultaneously the waste is dumped into the underground Melat Seperator container placed at the ground floor. Here module is used

to control and monitor the Metal and the information will be sent to the particular organization and the common man.The mobile shows the collection of Metal and the particular date and arrival time of the vehicle.
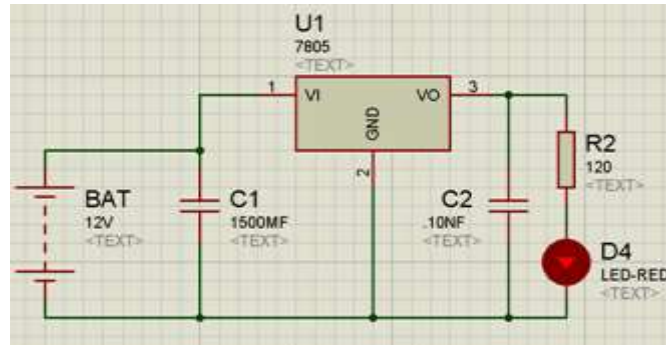
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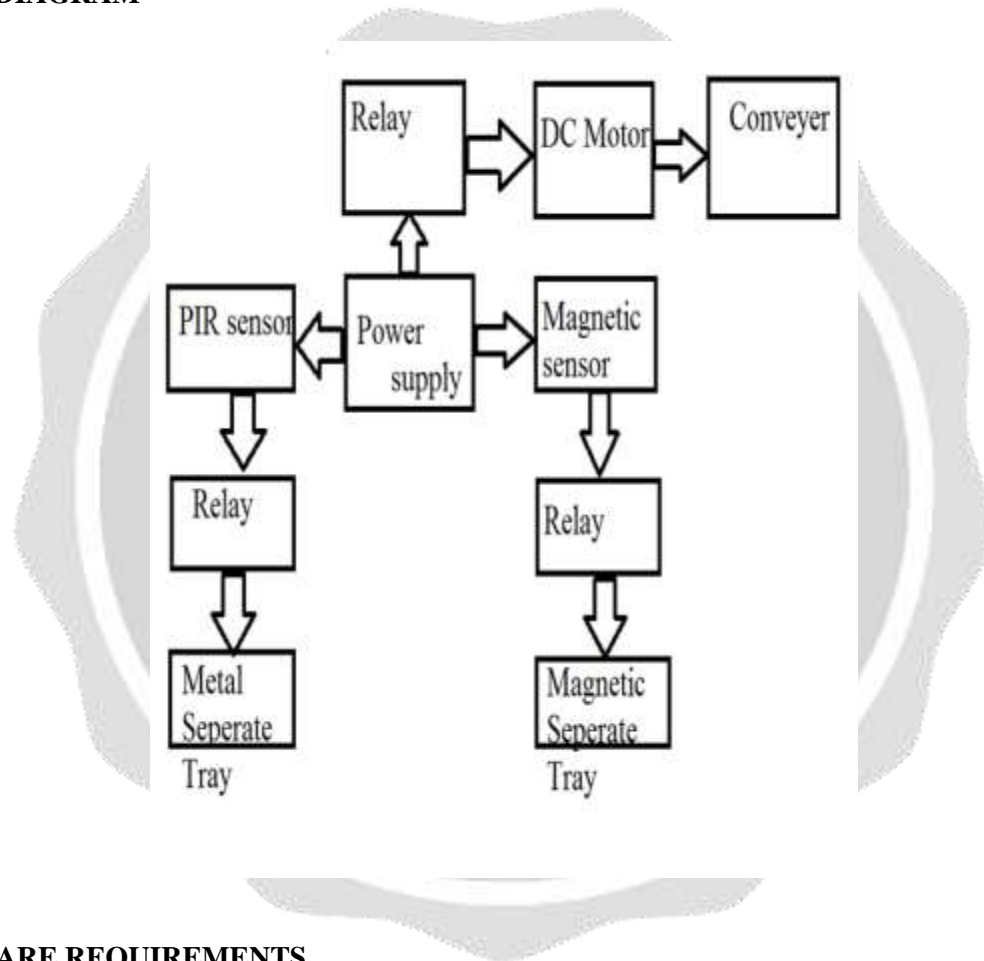
HARDWARE REQUIREMENTS

The hardware requirements for the system are as follows:

POWER SUPPLY

Fig:2. Fixed Voltage Regulators

The series 78 regulators provide fixed regulated voltages from 5 to 24 V shows how one such IC, a 7812, is connected to provide voltage regulation with the output from this unit of +12V Dec. An unregulated input voltage VI is filtered by capacitor C1 and connected to the IC's IN terminal. The IC's OUT terminal provides a regulated + 12V which is filtered by the capacitor C2 (mostly for any high-frequency noise). The third IC terminal is connected to ground (GND).

While the input voltage may vary over some permissible voltage range, and the output load may vary over some acceptable range, the output voltage remains constant within specified voltage variation limits. These limitations are spelled out in the manufacturer's specification sheets.

ATMEGA328P Micro Controller

The atmega328P is the one of the most advanced micro controller from micro chip. It is widely used for the experimental and modern application because of its low price, high quality, multiple futures which has inbuilt ADC/DAC, timer, shift registers.

DC MOTOR

DC motors are widely used, inexpensive, small and powerful for their size. Reduction gearboxes are often required to reduce the speed and increase the torque output of the motor. Although recent developments in stepper motor technologies have come a long way, the benefits offered by smooth control and high levels of acceleration

with DC motors far outweigh any disadvantages. Several characteristics are important when selecting DC motors and these can be split into two specific categories. The first category is associated with the input ratings of the motor and specifies its electrical requirements, like operating voltage and current. The second category is related to the motor's output characteristics and specifies the physical limitations of the motor in terms of speed, torque and power. In case of geared motors another attribute that can be specified is the gear ratio. The higher the ratio, the stronger robot (more torque; less speed), the lower, the faster robot(less torque; more speed). Direction of rotation of a motor can be controlled by the direction of voltage applied across the terminals. Speed of the motor can be controlled by varying the voltage applied and in cases where only digital signals are available by using Pulse Width Modulation (PWM).

APPLICATIONS AND ADVANTAGES

1) To collect dustbins placed at public places in city.
2) This project can also be used in college / university campus
3) This project can also be used in companies

FUTURE SCOPE

There is agreat scope for the modifications of the Smart Metal Seperator in future. The system can be improved by adding new functionalities. Dumping of the waste was manual in Smart dustbin this can be automated by fixing a tipper. The Smart Metal Seperator can be well widely used in the Smart buildings of Smart cities.

CONCLUSION

RELAY

A relay is an **electrically operated switch**. Current flowing through the coil of the relay creates a magnetic field which attracts a lever and changes the switch contacts. The coil current can be on or off so relays have two switch positions and they are **double throw** (**changeover**) switches.

Relays allow one circuit to switch a second circuit which can be completely separate from the first. For example a low voltage battery circuit can use a relay to switch a 230V AC mains circuit. There is no electrical connection inside the relay between the two circuits; the link is magnetic and mechanical.
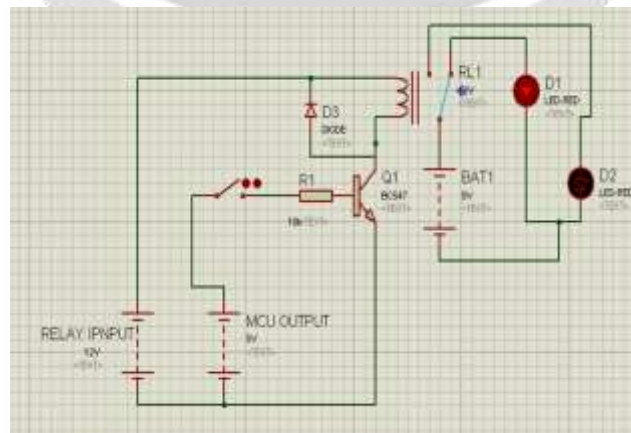
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