

# AUTOMATIC DETECTION OF MISSING HOLE ON IRON JOB

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## Abstract

Now a day's various techniques are used For The better improvement of the job. There are some defects, drawbacks, misalignments and errors etc. in the iron manufacturing industry. To overcome these misalignment an automatic inspection is required. In this we are using algorithm to analyzing the defects. Therefore there is a need to develop a technique to check the regularity and develop an accuracy in this process. The automatic detection is advantageous to human inspection because of slowness and fatigue. In recent years the iron industries require automation due to missing holes on the job and another important factor is to reduce the inspection duration. This factors lead to automation in iron industries so automated systems are preferred in manufacturing industry for higher productivity. Using PIC Microcontroller this problem can be overcome, that is the drawback of missing hole on iron job and get information quickly. If any hole is missed during the drilling operation then the alarm starts ringing and the system needs to be reset.

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## 1. INTRODUCTION

The industry has a major impact on the world economy the global economic pressure has gradually lead business to ask more in order to become more competitive.

In iron manufacture industries like drilling holes on the metal some holes remain undrilled so an automatic detection of holes which are missed should be known to increase the quality of job. Simple portable handheld drilling machines are commonly used in the industry.

This type of drilling machines is used to drill an iron job. For drilling an iron job we require human force, because of that sometimes, drilling depth is not estimated properly, and due to this human error job may get damaged. So to overcome all these problems missing hole detector circuit is used, which can detect the quality work done on the job.

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## 2. OVERVIEW OF RELATED WORK

In an iron automobile industries it is not possible to inspect every iron job manually, because of the speed requirement. Thus we have developed an algorithm to inspect the job and to identify a missing hole on the job. This system inspects job and checks whether there is, any defect in the job.

If hole is missing then it is known by the technique using PIC controller, IR sensors are used to sense the iron job running on the conveyor belt. By using the algorithm we can

evaluate the efficiency of the proposed algorithm with respect to the required time.

Thus this method is effective than the usual method of human inspection so that we can easily identify the missed hole on the iron job.

## 3. BLOCK DIAGRAM

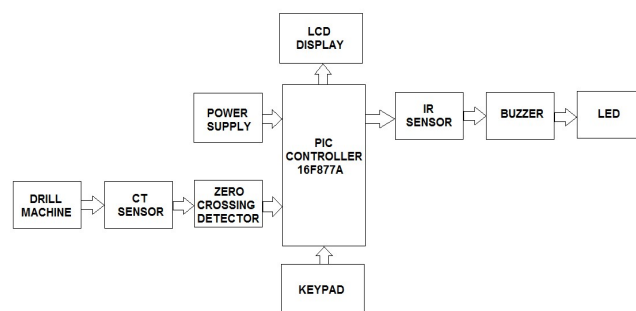


Figure: 1

## 4. CIRCUIT DIAGRAM

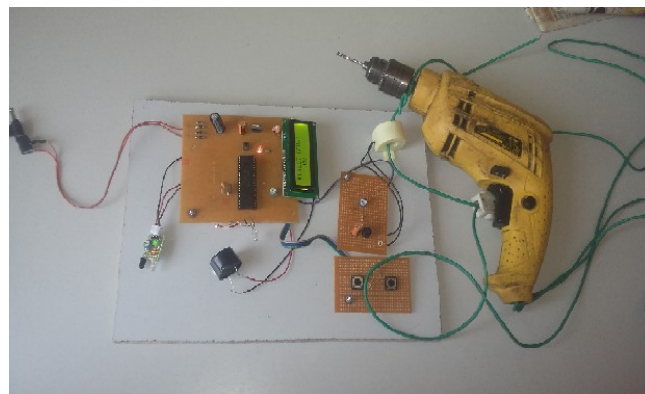
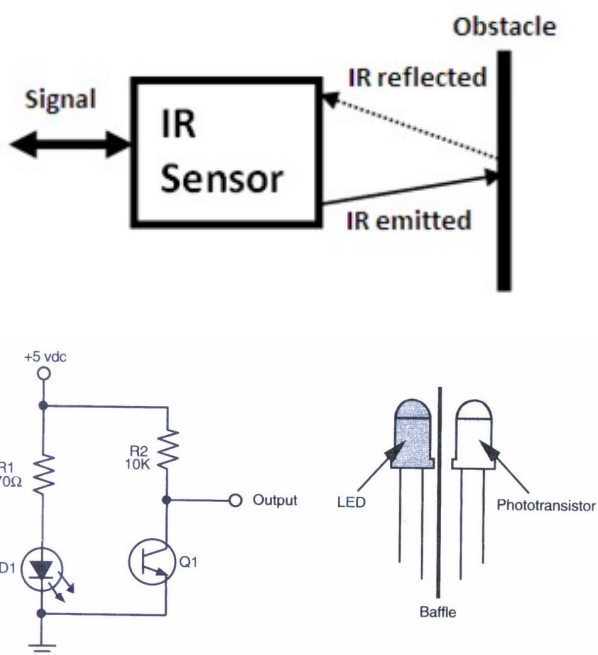


Figure: 2

## 5. IR SENSOR



The basic design of the infrared proximity sensor.

Figure: 3

- An IR sensor is used to detect obstacles or to differentiate between colors depending on the configuration of the sensor
- It consist of an emitter, detector and associated circuitry
- When IR light falls on the photodiode, its resistance and correspondingly, its o/p voltage change in proportion to the magnitude of the IR light received.

## 6. CT SENSOR

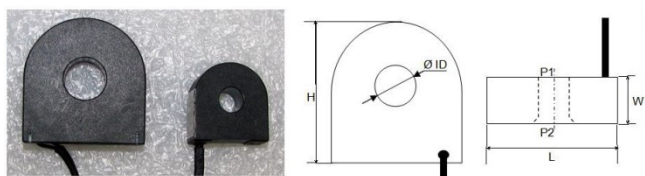


Figure: 4

Transformer is a device which converts one form of energy to another form. In sensors to measure alternating current we use a special transformers called current transformers(CTs).

The current transformers are used for measuring the electricity consumption or generation etc.

Similarly in our project we have passed the drill machine wire through the CT sensor.

Current transformers (CTs) also have both winding, i.e. primary and secondary, a magnetic core. When we perform drilling function using current transformers, the alternating current is produced .And this output of the transformer is applied across zero crossing detector.

## 7. METHODOLOGY

### STAGE 1:

**Selection of topic:** In this primary stage we have gone through many topics on that we can work. Finally we have selected this topic because it is a sponsored project. At the same time we have increased the efficiency and accuracy of their system.

### STAGE 2:

**Block diagram selection:** After finalising of our project topic we started working on block diagram. After working on this we have made the selection of block diagram.

### STAGE 3:

**Selection of field and assembly of components:** After selection of block diagram we have selected the field and assembled all the components.

### STAGE 4:

**Software selection:** we have written the program in MP LAB for PIC controller.

### STAGE 5:

**System implementation:** After completion of programming and simulation we have started system implementation. We have divided the work of implementation in stages. The system implementation follows the block diagram.

### STAGE 6:

**TESTING OF SYSTEM:** After the successful implementation of system we have tested on it and then after we have given the demo.

## 8. WORKING PRINCIPLE

- Firstly the job presence is sensed by the IR sensor after that we set a count through keypad to check the specified number of holes to be made on the job
- Then drilling operation is being carried out on the job during the drilling operation the counter decrements after the completion of each drill.
- If the earlier set count is equal to the zero then the job it is passed to the output.
- If not then the alarm rings.
- Once the alarm starts ringing the system is reset and the above operations are carried out from start.

## 9. ADVANTAGES

- Reduce man power.
- With the help of PIC Controller it is easy to control whole mechanism.
- Automatically checks the quality of job.

## CONCLUSION

This is to implement and count the number of drills made on a job using pic controller to reduce the effort of workers .By using pic controller we can check the number of drills on job

and display the count to check whether the job is drilled well or not.

In iron manufacture industries like drilling holes on the metal some holes remain undrilled so an automatic detection of holes which are missed should be known to increase the production.

## REFERENCE

- [1]. Programming and customizing the PIC Microcontroller by Myke
- [2]. Predko, (TAB electronics) 3<sup>rd</sup> Edition.
- [3]. PIC Microcontrollers Programming in basic by Milan Verle, Mikro
- [4]. Elektronika Publications, 1<sup>st</sup> edition.
- [5]. PIC Microcontroller Manual-Microchip.
- [6]. Automated Drilling Machine with Depth Controllability-
- [7]. International journal of science and engineering applications
- [8]. volume2 issue4,2013,ISSN-2319-7560.
- [9]. Fundamentals Of Infrared Detector Materials by Michael A. Kinch.
- [10].Electronic Sensor Circuits And Projects by Forrest M. Mims, Master
- [11].Publishing Inc, Volume 3.
- [12].PIC microtroller And Embeded Systems using Assembly and C For PIC by
- [13].Mohammad Ali Mazidi, Pearson Publications , 1<sup>st</sup> Edition.
- [14].Liquid Crystal Display Drivers by David J.R. Cristaldi, Salvatore
- [15].Pennisi, Springer Publications.
- [16].www.electonics foryou.com.