

ELECTRONIC STORE USING e-KANBAN TECHNOLOGY

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Abstract –

Abstract – Our project is based on monitoring the number of components by calculating it's weight. The role of sensing device will be act by load cell which converts the force to an electrical signal which contain the information of it's weight and volume of products. Load cell will be kept below a rack over which product will be placed. This model is a digital measurement system for checking the number of products placed in a rack. The system will display the result automatically. It is a user friendly system. smart card will be used for issuing the products by employes, without inserting smart card if any person tries to lift the product alarm starts sounding. In a particular PC, every single data will be store. For many manufacturing industries. this project is helpful.

Keywords – Load cell, PC, smart card.

I. INTRODUCTION

Storing, issuing, purchasing of components is a tough task to manage. These difficulties are easily handle by our model . All the important information will be recorded manually. Our project focus on weight scale system. This project is all about monitoring the weight of products in order to calculate it's volume .The role of sensing device is played by load cell[1]. The system will automatically display the stock information on the LCD. A smart card is a tool used as an entry pass for buying the products from the store room of factories[2]. If there is any malfunctioning then alarm placed will start alarming and the security can be handle. Number of products should be calculated and known in order to maintain stock information.

Since in many industries if any employ has to take the bulk of components from the store room of an industry, he has to do the entry manually as well as he has to count the number of components which is just wastage of time. This project is the solution of such problems.

We have used e-KANBAN technology[3].Electronics kanban differs from the traditional kanban technology such that it replaces traditional elements such as kanban cards with barcodes and electronics messages. In kanban all the works are done using kanban cards which are identified by barcode reader. Real time results are given by this technique. Instead of using kanban cards ,signals are used which will modify the technique which is called as e-Kanban. Many of the e-Kanban uses RFID for raw material management.

The advantages of e-Kanban technology are all the important information is available in real time, because of that

many related risk can be avoided, maintenance cost is low. In the kanban technology cards are used for transfer of information from one department to other but in the e-kanban technology RFID are used for transfer the signal.



Figure 1. LOAD CELL

II. Traditional Methods of Allocating Manufacturing Overhead

Let's overview methods used to allocate manufacturing overhead. suppose the method does not follow the true amount of factory overhead, the cost per unit of product will be increases and could result in management making a wrong decision. As per these methods, *the allocated amount of overhead results the true amount of overhead used in that item's production?*

Allocating Manufacturing Overhead Via Direct Labor

Earlier it was logical to allocate manufacturing overhead on the basis of direct labor hours (or direct labor cost). The process of manufacturing was not automated, the variations were very less in the products made (think Model T cars), and customers did not demand such things as JIT (JUST IN TIME) deliveries or bar coding. In those days, by manufacturer there is direct increase the amount of direct labor , there was increase in such things because of the factory space to be maintained, the number of factory supervisors, and also factory utilities and supplies consumed. In brief, there was a high degree of interrelation among the amount of manufacturing and the quantity of direct labor used. Through allocating manufacturing overhead on the reference of direct

labor hours, a product that requires 30 direct labor hours would be allocated twice of manufacturing overhead as a product requiring 15 direct labor hours.

Allocating Manufacturing Overhead Via Departmental Machine Hours

Coming up with 20th century, manufacturers controlled and studied direct labor's motion and time and started substituting direct labor with machines. The high demand of machines gave an increase in factory overhead due to such things as machine setups additional depreciation of the machinery, and maintenance of the machinery. With the decrease demand of labor made manufacturing overhead high, the relation between direct labor and manufacturing overhead began to wane.

Industries also started to create particular departments to manage the changing character of the factories. Production department like finishing, machining, and assembling were created. Other departments like factory administration quality control, and maintenance were renamed as service departments, since these departments served the production departments. The company's costs were contained in the accountant's general ledger, which was organized by departments so as to supervise the production chart and to provide for control and budgeting. Because few of the production departments used service departments more costs/efforts than others, The costs to the production departments, were accountants responded by first allocating the service department and then developing manufacturing rates for particular production departments. These rates were measured by dividing each production department's costs by its machine hours.



Figure 2. Manual inspection in a store room

Basing the manufacturing overhead rates on a factories's production departments was modification over using just one rate for the entire plant. Specially when greater variety of products are began to be manufactured in factories. Many machine hours in one department required for manufacturing of products. Where as very few hours in different department, while other products may have used a much several combination of machine hours.

III. PROPOSED SYSTEM

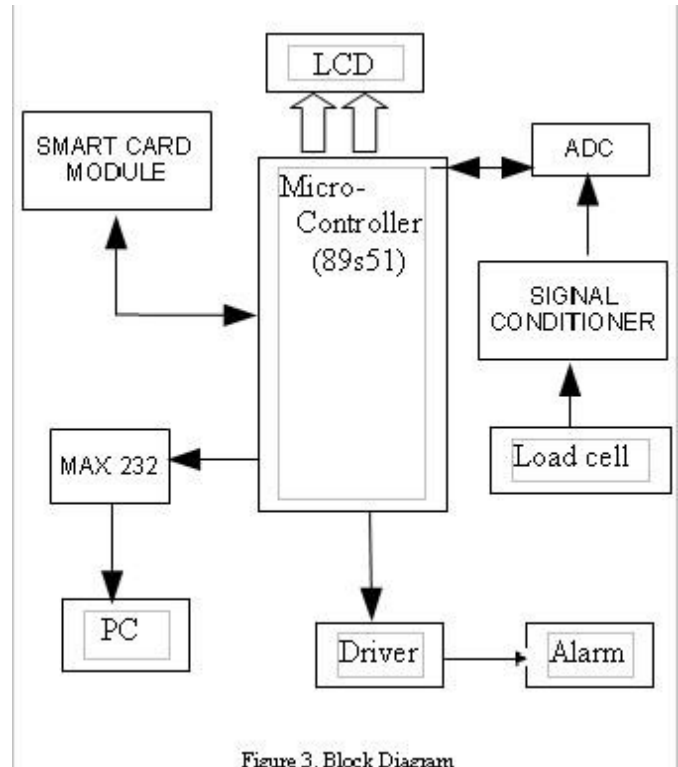


Figure 3. Block Diagram

LOAD CELL:-

Rack consist of load cell over which products are placed .Load cell measure the weight of products and calculate its volume, which is given to signal conditioning.

SIGNAL CONDITIONING:-

Since the output of a load cell is resistive so it cannot directly interfaced to ADC. This is used to convert load cell output to voltage which is readable by ADC[4].

MICRO-CONTROLLER:-

Controller monitors the output of ADC which is displayed on the LCD.

SMART CARD:-

Smart card reader are used when anyone has to take any products he has to insert his smart card and only then take the products.

ALARM:-

Alarm starts sounding in case when someone tries to lift the products without insertion of smart card.

MAX232:-

MAX232 [5]is used for converting controller 0 and 5 volts into RS232 protocols voltage level for communication with GSM module. The default baud rate for communicating with the GSM module is 9600bps.

HOW THE CIRCUIT WORKS

=> Load cell is a transducer which converts the force created by the weight of products to an electrical signal which consist of information like number of products and its weight.

=> Output of load cell is an electrical signal of very few millivolts. Hence requires an amplification before it can be used.

=> ADC will convert the analog electrical signal to digital signal which is further given to micro-controller.

=> Through micro-controller the LCD gets information and display the weight and number of products present in rack.

=> When anyone has to take any components he/she has to insert smart card and only can take the components.

=> When someone tries to lift the products without insertion of smart card the controller pin gets high transistor will be switched on and the buzzer gets connected to the ground and it start sounding.

III. COMPARATIVE ANALYSIS OF DIFFERENTS METHODS

Sr. No.	Different methods	Advantage	Disadvantage
01	Manual operation	Less investment	High error possibilities
02	Operation using kanban	Good performance	Error possibilities
03	Operation using e-kanban	Better performance than kanban	Very low error possibilities

Table 1. Performance comparison table.

IV. FEASIBILITY STUDY

Consider an employ need 20 transformer. he will insert his smart card,which will automatically registered his detail in managers's computer.

Let rack consist of 50 transformer,when an employ will lift 20 transformer and removes his card the details like which employ had issued the transformer ,at what time will be registered on manager's computer. Hence total time consumption will be of 90 seconds.

Without this model if above procedure is fallowed total time consumption will be of 450 seconds.300 seconds will be required for filling the details,90 seconds for counting the transformer,and 60 seconds for filling the details at the end.

Benefits

Main benefits of our project:

Setup time is reduced. This decrement of setup time permits the company to eliminate /reduce inventory for "changeover" time.

Multiple skilled employees are used more efficiently. Hiring trained employees to work on different areas of the process permits companies to move employees where they are actually needed.

Work hour consistency and production scheduling synchronized with demand. At the time if there is no demand for a product, it is not made. This will saves companies's money, either by having them focus on other work or participate in training or by not having to pay workers overtime.

Supplier relationships emphasized. If a company without inventory does not require problem of supply system that creates a part shortage. Hence supplier relationships is extremely important for company .

V. CONCLUSION

In this paper, we have discussed electronic store using e-kanban which provides an efficient management products in store. This paper describes the different method which is also user friendly. This system has main feature that it uses e-kanban technology not only to display the details but to store the data time to time to keep system secured and well managed.

The old techniques were having many drawbacks like there was possibilities of error and time required is more. Which will consume more time with less security. This paper gives solution to all these problems.

VI. ACKNOWLEDGEMENT

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