ADVANCED LIQUID DISPENSING UNIT USING EMBEDDED SYSTEM

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ABSTRACT: In this context we have identified with problem of some other technics to find the accurate result, so finally embedded system came into the picture and started the business, every activity is performed and managing with the help of micro controller, in this project we have started to build the experiment with two steps down transformer.PCB is connected to level sensing unit. Which is also operates with 5 volts only. it indicates the level sensing agent of two tank like Tank A and tank B. DC motor is used to rotate bed which is hold the bottle in restricted station. Rotary conveyor is moves with DC motor and senses with input switch 1and 2 in this context, we can change the delay time as our convenient by embedded program system. This is the main features of embedded system which is dealing with present project.

KEYWORDS: Microcontroller, solenoid valves, level sensing unit, step-down transformer etc

1.0 INTRODUCTION

Every activity is performed and managing with the help of micro controller, in this project we have started to build the experiment with two steps down transformer. This whole assembly controlled by 5 volts. On the other hand, one more PCB connected which is known as level sensing unit. Which is also operates with 5 volts only. it indicates the level sensing agent of two tank like Tank A and tank BDC motor is used to rotate bed which is hold the bottle in restricted station once the disc rotates continually with 10 rpm with motor, then put one bottle in rotary conveyor then it senses with input switch 1and settle for a while.

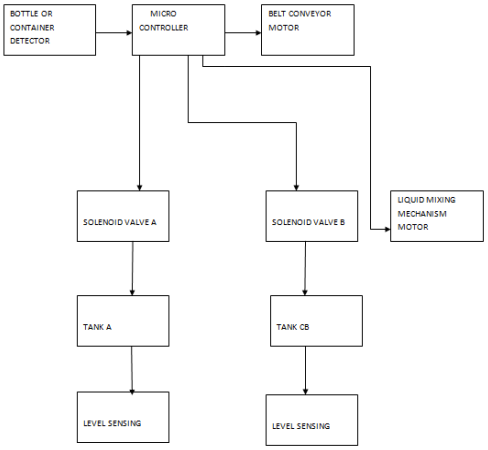

Fig.1 Block diagram of system
advanced liquid system

Then solenoid gets activates and liquid starts flow in bottle 1, then it continues rotates with conveyor and stays for 10seconds in tank B and second solenoid gets activates and fill the liquid into the bottle and send it to next operations, A moment when bottle gets touch to input switches then only solenoid switch ON .or else bed will rotates continuously it all carried out by pre-defined programme. Which is written in microcontroller chip we can change the delay time as our convenient same procedure will be continue with coding of embedded system.

2.0 LITERATURE REVIEW

E.R. Alphonsus [1]: A moment when we start to increase the automation notable, a control system essentially and to be ease programmed, flexible errorless, powerful and eventually effectiveness of cost, in this particular paper the application of programmable logic controller (PLC) is vastly discussed. Investigations carryout by the application of PLCs R&D and study in engineering field, some of the applications of PLCs are controlled in industrial aspects. And monitoring applications too, PLCs are also having its own limitations but compare to its limitations it is having its unique advantages, in this paper we have observed that PLCs are very useful for any applications whether it is complicated or simple control system.

P.G.Berrie[2]. This isn't just the procedure and estimation of various factors for observing and controlling frameworks. What's more, from this time forward consistent quality will be unaffected by the administrator; it additionally can be o diminishing the capital stock and vitality is contrast with more productive effective. From the other hand, the administration

resources and process and in addition endeavour level is more in significance. This setting audits the necessities of the computerization business on field instrumentation, the instruments are uses and measure the procedure factors, and the mix of the instruments encouraged into mechanization and control frameworks. A lone couple of reasonable viewpoints and an attitude toward future innovative work.

Bipin.Mashilkar [3]- Fluid filling machine is generally we will find in refreshment and packaging producing unit. On the off chance that changed fluid volume is probably going to be filled and for each situation it isn't completely touch with programmed situation. The fundamental reason for this setting is to alter and come into contact with a programmed fluid filling machine. Microcontroller is utilized to control the programmed activity of this framework and this framework comprises bi directional engine and number of filling stations. Microcontroller is picked as the controlling specialist since it is less demanding to distinguish the data according to directions and the minimized size makes it less demanding to fit with the framework. The programmed fluid filling machine is created to be in less cost value contrast with other filling machines with the client. The machine works with smooth and simple to adoptability, extremely straightforward codes are sufficient to work machine. The controller is additionally versatile and can be appended with roller transport to turn the overnight boarding-house will settle on the specific station.

M.Sravan Kumar [4]: Security and Robotization is a prime worry in our everyday life. The approach to home and modern computerization and security framework configuration is relatively institutionalized these days. In this paper, we have attempted to increment these principles by consolidating new plan methods and built up a minimal effort home and mechanical mechanized security frameworks. Everybody needs to be as much as secure as could be expected under the circumstances. Gas sensor, Smoke sensor and Main Meld Failure Detector at Home and Industries

TorstenBrune [5]: This diary put an inventive thought on exchanging point distinguishing proof of a solenoid valve. A flag based investigation treats the deliberate amounts and edges subsidiaries. Euler's first request estimation investigation the subsidiaries, the signs make up for lost time by simple sifted. The limits are tentatively discovered, that is the reason it can adapt up to any valve of same kind. On the highest point of that the exchanging focuses are recognized. Furthermore, a few Assumptions are composed on the weight development. This is acknowledging, if the weight likewise to be affected on the exchanging focuses. A system is utilized to prepare the relationship of valve business conducted a survey on Internet of things architecture and discussed about Technical challenges such as technology, standardization, security and privacy. One of the big challenges for Internet of things is the Design and service oriented architecture. More over Internet of Things is a complicated heterogeneous network and it causes complexity between devices. More and more research on Internet of Things is necessary.

3.0 CONSTUCTIONAL FEATURES OF PRESENT WORK

With the first step of this work, a 230V supply is connected to a step down transformer. The DC motors operates with 10 rpm. Here we have used card board for conveyer and for some other process to reduce weight and cost of material. A PCB operates in two ways one for controlling the whole system and one for controlling the solenoid valve.

The steps involved in the manufacturing of PCB are as follows:

3.1 Design and preparation

Fig.2 blank plate of PCB

Design should be prepared on transparent polystyrene film, block ink or adhesive tapes and pads are used to prepare a sketch. On top of that screen printing techniques is very easy to create the desired art work of PCB. This is the initial step in fabricating of PCB.

3.2 Pattern Design

In any PCB fabrication industries, pattern is usually modified to the laminated surface, hence lamination will be by means of screen printing or some advanced method like photographic method.

3.3 Etching

Etching is a method which is utilized for the creating the printed circuit sheets: corrosive is utilized to expel undesirable copper and contamination like dust and all from a prefabricated laminate,The Etching process may take 30-40 min depending upon the PCB.

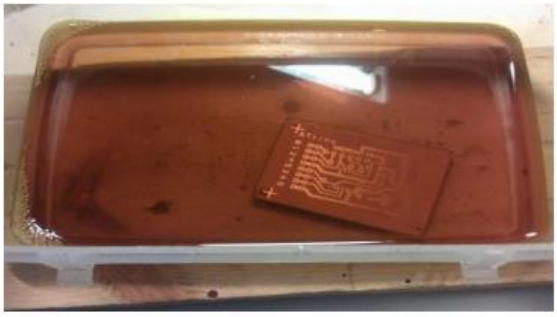

Fig. 3 Etching process

3.4 Soldering

The two surfaces of soldering point should be properly cleaned and made free from any dust, grease or oil. Infect, through clearing of the PCB before beginning of the soldering operation and proper tinning of the component leads at the time of soldering that component achieves good result.A small quantity of flux may be applied on the surfaces to be soldered. It is the function of the soldering flux to keep away any oxide film. During soldering operation allow the two surfaces to make a metallic contact and alloy with each other.

3.5 Relay interface

When the logic signal from controller or any other circuits like timer's op amps is applied to base of the transistor through resistor 1KOhm. When base signal is high, transistor saturates and it energizes the relay. The transistor act as a small signal amplifier resistor of 1KOhm is used to provide proper emitter base voltage to turn the transistor to ON state from OFF state.

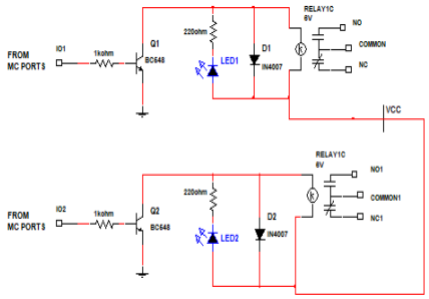

Fig. 4 Relay interface circuit diagram

3.6 SOLENOID VALVES

A solenoid valve is an electromechanical controlled valve. The valve includes a solenoid, electric loop with a ferromagnetic centre will be at c focus. This centre is likewise call it as plunger. In zero position, the plunger stops a little opening. The loop makes an attractive field through an electrically. The attractive field apply a power on the gadget a plunger.At the point when the solenoid is impelled, the opening will be in shut condition. The working weight is at high and the stream rate is specifically connected to the opening width and the attractive power of the solenoid valve.

Fig:5 solenoid valve

4.0 Keil software used in this project

The Keil C51 C Compiler for the 8051 microcontroller plays vital role in electronic application, 8051 C compilers is very popular in the world. It overtook more features than any other 8051 C compiler what we are referring today.

5.0 Motto of C in Embedded Systems

The immediate advantages of utilizing C in Embedded Systems configuration are as per the following.

You won't be overpowered by subtle elements. 8-bit microcontrollers aren't simply little: microcontrollers incorporate just the rationale expected to play out their limited undertakings, to the detriment of software engineer "comfort". Working with these restricted assets through a C compiler abstracts the engineering and keep from soiling you down in opcode arrangements and silicon bugs.

You will take in the rudiments of convenience. Installed applications are fetched delicate. There might be extraordinary impetus to change parts (or even structures) to decrease the per-unit cost. In any case, the cost of changing low level computing construct code to permit a program composed for one microcontroller to keep running on a diverse microcontroller may evacuate any motivation to roll out the improvement.

You can decrease costs through conventional programming strategies. This paper stresses C code that sums up microcontroller highlights. Points of interest identifying with particular equipment usage can be put in partitioned library capacities and header documents. Utilizing C library capacities and header records guarantees that application source code can be recompiled for various microcontroller targets.

6.0 Conclusion

On-going improvement in the science and innovation give an extensive variety of extent of use in decrease control wastage in the business. This context is helpful in local too in the mechanical applications. By this strategy it's conceivable to execute the tasks in the business with wellbeing measures and furthermore decrease the labour and increment the profitability. Not so much misfortunes but rather more exactness. It's conceivable by changing the program reasonable for any industry. We hope that this context will be stand in industry for longer and its very helpful for finding new approaches and research based applications.

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