

PRODUCT COUNT SYSTEM

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ABSTRACT: *Industrial production lines churn out products from raw materials all the time But keeping these lines running smoothly is a very difficult task. There are many processes running together, which can lead to manual errors. The production line has different processes, and the products produced need to be counted manually from one time to track and then sent to the next department. The human calculation of infinite products is impossible for humans. Someone inevitably lost track of him once. Here we have created an automated trading product to fulfil this task. This system provides the following Advantages: Automated Tireless counting, Keep Count Data Stored as well as Display live count, and No Error probability in counting.*

KEY WORDS: Arduino Uno, E18-D80NK IR sensor, DC Motor

I. INTRODUCTION:

The product count system is very important now a days because mostly it will be used in industrial purposes like a boxes in packing or any solid substance so, basically it will count all the objects how much we need suppose if we enter some values like approx. any hundred then it will set as limit then it will give output from the component it acts as a main role in this project the ir sensor is a main component which detects all objects where it was run on the conveyor belt then it will detects the each object when the limit has been exceeded then the beep sound is given by the buzzer.

Presently, the Counting System is been used in all the industries for measuring the amount of the devices in the crates. This technique gives more accuracy over the amount of number. Though, the exactness being high, it has a disadvantage when compared with the monthly figures. It produces a lack as one for thousand components for a single crate. This being small though, it becomes a major disadvantage at the end. The exact use of scale counting uses electronic machineries which keeps the unit mass of few components (e.g.: 150 components) as fixed and measures the exact quantity of all the components in the crate. In many applications small parts, such as nuts, are counted using a scale. With product counting the number of parts is estimated by weighing them and dividing the total weight by the (estimated) average weight of an individual part. This procedure avoids counting individual parts and can thus save time and money and improve the accuracy of counts.

The efficiency of product counting, measured in terms of the exact of the count, depends on the inconsistency of the weights of the individual parts, the measurement bias, variability and resolution, the number of parts being counted, and the procedure used to estimate the average weight of individual parts. This article was motivated by an application in the industry. In the application the goal is to package automotive parts in crates for shipment overseas (where the vehicles are assembled). The warehouse from which the shipments originate contains over 300 different chunks. The chunks range in cost and size from engines to small fasteners. The chunks are shipped in crates that are designed to contain all parts on a particular list of parts needed to build About 10 cars. In this application it is very important to get the exact quantity of each type of item in each safe. For example, some bolts are common). Many sites are now counted by hand, but smaller and cheaper ones are counted on a scale. This article examines the features of this example in more detail.

II BLOCK DIAGRAM:

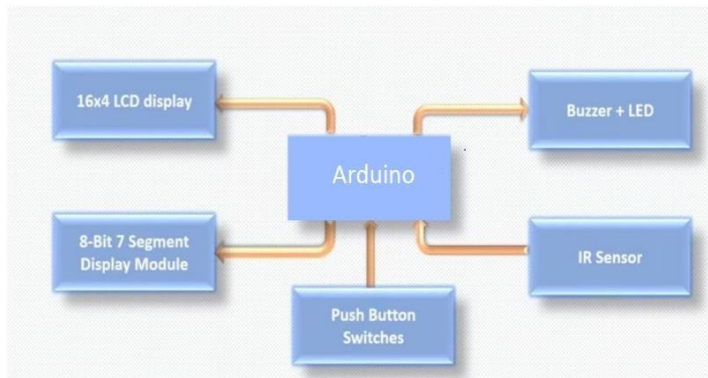


Fig 1: Block diagram of the system

A. ARDUINO UNO:

This Arduino mega is a microcontroller . It is a AVR RISC-based Microcontroller that executes powerful instructions in a single clock cycle . Due to this , it allows to balance between power consumption and processing speed.



Fig 2: Arduino uno microcontroller

B. LCD DISPLAY:

Today, we always use the strategies which are made up of LCDs such as CD players, DVD players, etc. These are usually used in the screen industries to replace the application of CRTs use more power than LCDs and CRTs are heavy. These devices are very thin and use very little power. A 16x2 LCD works by blocking light rather than scattering it. This article provides an overview of the LCD 16X2, its pin configuration and how it works.

The word LCD stands for Liquid Crystal Display. It is an electronic device with many applications such as mobile phones, calculators, computers, televisions and other circuits, mainly multi-segment LEDs and seven segment LEDs are preferred. The main advantage of using this module is that it is inexpensive; easy to program, animation, special symbols, custom and even animation and other unlimited viewing.



Fig 3: LCD Display

C. E18-D80NK IR sensor:

The photoelectric sensor of this product integrates emission and reception, and the sensing distance is adjustable. The sensor can detect distance without being affected by the light source. It is widely used in automated processes such as robot grippers and assembly line products due to its cost, assembly and performance advantages. The E18-D80NK is a low cost infrared proximity sensor with a range of 3cm to 80cm. The E18-D80 infrared proximity sensor has very little interference from visible light and works well even in sunlight. The E18-D80 is an easy-to-use infrared proximity sensor with an IR transmitter and an IR receiver in a single module. The infrared transmitter emits a modulated infrared signal that is reflected by obstacles and then detected by the receiver. The sensor works in modulated infrared light so the sensor can work in

daylight. The detection range of the E18 proximity sensor is about 3 cm to 80 cm. This detection can be adjusted using the multi-turn screw on the back of the E18 sensor.

Turn the screw clockwise to increase the range and turn the screw counter clockwise to decrease the range. Since the E18 sensor uses a multi-turn sensor, you have to rotate it several times to change the distance measurement. To cover the race from 3cm to 80cm, you need to turn the screw at least 10-12 full turns.



Fig 4: E18-D80NK IR sensor

D. DC Motor:

A dc motor uses electricity to produce an electric current, usually through the interaction of a magnet and a current source. The reverse process of generating electricity from electricity is done by a generator, generator or generator. Many types of electric motors can work as generators and vice versa. The figure shows a picture of a typical DC motor, the picture a picture of a DC armature, and the picture a picture of a typical stator. As can be seen from the picture, the armature is made of coils wound around a metal core with an extension shaft rotating on bearings. You should see that the end of each coil of the armature terminates at one end of the armature. The breakpoint is called the commutator, where the brushes make electrical contact and carry the current from where the machine is stopped to the rotation of the machine.

The stationary part is also called the stator. Figure shows a picture of a typical DC motor, Figure shows a picture of a DC armature, and Fig shows a picture of a typical stator. From the picture you can see the armature is made of coils of wire wrapped around the core, and the core has an extended shaft that rotates on bearings.



Fig 5: DC motor

E. Buzzer:



A piezo buzzers have piezoelectric elements, which are thin piezoceramic discs adhered to a metal plate. There are silver electrodes on both sides of the piezoelectric element used as an electrical contact. All components can be housed in a plastic case with or without driver circuitry. In summary, piezo buzzers work by applying an AC voltage to a piezoelectric ceramic material. Giving this feedback signal causes the piezoelectric ceramic to vibrate rapidly, thus generating sound waves.

IV SOFTWARE REQUIREMENTS:

A. ARDUINO IDE

Arduino IDE is software for connecting to Arduino hardware, uploading programs and communicating with it. It has a text box, a text field, and a toolbar for entering numbers. It can be downloaded from the Arduino IDE website. Arduino IDE will be installed on the system free of charge. Use in this embedded C programming to communicate with Arduino

B. EMBEDDED C:

Embedded C is a programming language that plays an important role in the operation of microcontrollers.

Designers must understand the hardware to write programs. During this process, embedded programs, timers, interrupt handlers, I/O ports, serial communication interfaces, etc. will directly control the internal architecture of the processor, such as Embedded C is a set of extensions of the C programming language that is handled by the C standard control group to emphasize the compatibility of C extensions with different systems.

Embedded C programming is often required as a non-standard extension of the C language to support advanced microprocessor capabilities such as arithmetic operations, multiple memory banks, and simple I/O operations. The C Standards Committee has developed a guideline that provides quality standards for all applications, last revised in 2008 and revised in 2013. It includes many features not found in plain C, such as arithmetic concepts, address names, and hardware I/O addresses.

V WORKING:

The product counter or product counter is often used in the international market, and the project that we will consider today can be used to count different types of products and products. In this tutorial I will also explain how to count objects/objects touching each other. I will explain the whole concept through SolidWorks 3d design. This is a computer simulation. As you can see, the 16×2 LCD 1 is connected to ground. Pin 2 is connected to 5 volts and pin 3 is the contrast pin of the LCD that connects the power difference and you can use this switch to control the contrast of the LCD. No need to add variables as this is just a simulation. The pins of the LCD is connected to the number 9 of the Arduino. LCD pin 5 is grounded. The open pin of the LCD is connected to the number 8 of the Arduino. Pins 4, 5, 6 and 7 of the Arduino are connected to data pins D4 to D7 of the LCD. There are actually 16 pins on a 16×2 LCD, but as you can see, pin 15 and pin 16 are not visible. During actual hardware connection, you have to connect pin 15 to 5 volts and pin 16 to ground.

The two buttons associated with the number 2 and the number 3 represent infrared sensors. So this button will be used to count the items and this button will be used to reset the relay. A 12v relay will be used for this project; You can use a 5v relay if you want. The 12v relay type I use another example. This type of relay has 5 pins, two coil pins, multiple pins, normally open and normally closed pins. 2n2222 NPN triode emitter grounded, collector connected to relay coil. While the other end of the relay coil is connected to 12v since it is a 12 volt relay... A 10k resistor is connected to the base of the 2n2222 transistor. This transistor is controlled using pin 13 of Arduino. The purpose of this relay is to operate another circuit, it can be used to activate the buzzer when the box is full, or this relay can be used pneumatically. cylinder to push the box. For the Solid works model explanation watch video given at the end of the Programming. The cylinder pushes the box. Watch the video provided at the end of the activity for an explanation of Good Practice Patterns. This is a complete program for the inventory system. As in this project, a 16×2 LCD was used to show the number of products/ products. So, to use this LCD we need to include the Liquid Crystal Library. That's why I added the Liquid Crystal.h header file first. # means it's a pre-reference and .h means it's a header file. Then I defined the pins for the LCD.

In a non-functional configuration, I first open the LCD and access rows and rows. Because it's a 16×2 LCD. 16 lines and 2lines. I then print the message "Tballs Now" using the lcd.print function. The lcd.print function is used to print a series on the LCD. Then I open the interrupt on pin 2 of the Arduino. Pin 2 of Arduino will be used for object or object counting. Finally, using the pin type function, I tell the controller which pins are input and which output.

VI RESULT:

In this project, we will learn how to make our own Industrial Slope Counting System using Arduino, 16×2 LCD and Infrared Sensor. The product counter or product counter is often used in the international market, and the project that we will consider today can be used to count many products and types of products. In this project we can see how to count objects/objects that actually touch each other. I will explain the whole concept with SolidWorks 3d design



Fig 8: Product count system

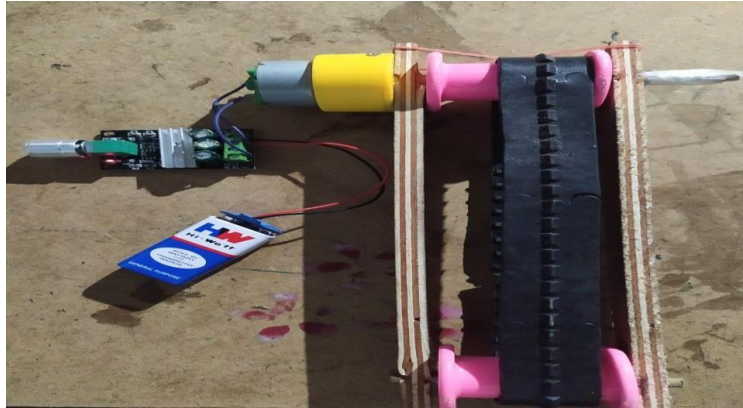


Fig 9: Conveyor belt

VII CONCLUSION:

Nuts, bolts, fasteners, wood screws, etc. new tools for counting mechanical parts such as Using systems with smart sensors is also more accurate than monthly analysis. Thus, it can be used easily and cost-effectively, which can be used easily. In this project which we can set a particular limit value so, that at the particular count the conveyor belt will stop and Buzzer give beep sound up to thirty seconds so that the limit value has been completed.

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