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DESIGN AND IMPLEMENTATION OF WEIGHT BASED OBJECT SORTING SYSTEM

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ABSTRACT

New high-speed technology and the advent of increasing computer capability provided real opportunities for new robot controls and new approaches to control principles. With the need of high-performance robots, this technological improvement has created faster, more accurate and more intelligent robots using new robot control devices, new drivers and advanced control algorithms. This project describes the new economic solution of robotic control systems. Automation has created a big publicity in electronics. The main reason for this promotion is to provide more benefits like automation, accuracy, energy conversation, reliability and more and more automated systems, no human attention is required. The demands of an automatic device design require one of the above requirements. The energy conversation in the present scenario is very important and should be done to the maximum extent where it is possible. The main purpose of this paper is to design an automated content management system. It synchronizes the movement of the robot box to select and uses the load cell on the conveyor belt to move the objects after sorting them based on their weight. Thus to eliminate the monotonous work done by the human, to achieve accuracy and speed in the work. To measure the weight of items placed on the conveyor belt, the system includes a load cell device

I. INTRODUCTION

The microcontroller sends the signal to the eight relay circuits which capture the object and drive the various motors of the robot box in the specified place. Depending on the weight, the robotic arm moves to the specified position, releases the object and returns to the original position. Micro controller reads data and gives proportional signal received from the process. The original firmware for microcontroller is written in Embedded C language. The system uses DC motor for the movement of the conveyor belt and servomotor to select the same color objects in one place with a special angle. The proposed method uses a load cell which is a transducer used to make an electrical indicator whose magnitude is directly proportional to the force being measured. Load cell is a sensor or a transducer that converts load or acting on an electronic signal on it. This electronic signal can be used on the basis of load cell and type of circuitry which can be a voltage change, current change or frequency change. Different types of load cells include hydraulic load cells, pneumatic load cells and stress gauge load cells. Being stressed through a mechanical arrangement is a stress gauge deforms the stress gauge measures resistance to the electrical resistance (tension), which measures a stress and therefore forces a load cell usually a Wheatstone There are four stress gauges in the bridge configuration. Load cells of a stress gauge (quarter-bridge) or two stress gauge (half-bridge) are also available. Algraphractional signal output is usually in the order of distance of some miles and requires amplification by an instrument envelopee before using it. Transducer production can be increased to calculate the force applied to the transducer. Paselectric load cells work on the same principle of distortion as the stress gauge load cells, but a wilt output is produced by the original piezoelectric maitry - in proportion to the distortion of the load cell. Most applications for dynamic / often measuring piano-based load cells are in dynamic loading situations, where stress gauge load cells may fail with high dynamic loading psycho. Load cells or load sensors are commonly called - resistive, capacitive, inductive or other techniques can be used. The most available load cells are based on the principle of change of resistance in response to an applied load. It is called piezo-resist, which means that in response to any applicable pressure (or squeezed) it turns into Loadstar sensor has pioneered the use of capacitive technologies to build small digital load cells, many of which are very clearly clear, coined with high level USB, WiFi, XBB wireless and Bluetooth conveyors. Before the invention and implementation of conveyors, warehouses and factory employees, physical journey is required to take place with some other place. There was nothing but garbage for the employee, it was indisputable for the company and essentially, there was a big waste of time. Conveyor brings a worker to a



worker instead of traveling to a project. Conveyors can be used to transport parts to workers in a plant or warehouse or for transport, and in the shipping dock for delivery, delivery. In addition to the obvious benefits of increased efficiency, conveyors can increase quality control at a manufacturing or storage location. Using automated production lines, different parts can be transferred to the output. We have more than a dozen patents covering various aspects of capacitive and digital load cells. We have also developed a variety of convenient low costs, which are digital and analog interfaces which are capable of incorporating load cells and other sensors in different types of applications.

Generally available load cells include:

- S-beam load cell
- Single point load cell
- shear beam load cell
- Pancake load cell - button load cell - hole load cell and - through small and sub-small load cells

Automated machinery allows such workers who were once designated to transport parts to run those tasks which can not be easily automated, such as quality control or supervision / management processes, in addition to the conveyor Can increase the security of a group. Specialty conveyors are designed to transport heavy or dangerous products, which protect employees from harmful pathways. The history of the conveyor belt begins in the latter half of the 17th century. Since then, the conveyor belt has been an essential part of the content transporter. But it was in 1959 that the conveyor belt became a popular means of conveying bulk content. In the beginning, the conveyor belt was used only to run the grain sack for short distances. The conveyor belt system and work were quite simple in the early days. The conveyor belt system had a flat wooden bed and a belt that used to travel on a wooden bed. Earlier, the conveyor belt was made of leather, canvas or rubber, this ancient conveyor belt system was very popular for transporting heavy objects from one place to another. In the early 20th century, applications of conveyor belt became widespread. Long was the company's first player to receive a patent for the roller conveyor of Highgate Goddard in the company of Longcom in 1908. Roller conveyor business did not succeed

II. RELATED WORK

The purpose of the proposed system is to use a robotic arm to make a weight based object sorting. Drill a hole 8 cm from the front and side so that the disc is close to one side. This will leave the place for the piston which will take it to the other side. Cut a 4 centimeters and give it glue in the base. Slide the disk to disk and glue the slice of 2.5 cm on the disk. This way the disk will rotate, but the support structure will have two screw eyes on the right; The inside side is very large for the syringe tube and is 2.5 centimeters above the bottom. The outside can be a little because there will be only one wire, and it is 5 cm below it. And 5 cm from the back (the long side of the base is behind). If one has one, then use a bigger one on the outside before that make them easy (especially the inner one) screw the pieces of the disk before a glass. Place a piece of dowel to fit in the 6 centimeter hole below. Going to the outer edge of the support structure should be quite long, so the structure is completely 3.2 centimeters. The long arm should be 3.2 centimeters (measure your long dry hand) so that the space needs to be inserted into the top holes so that they stick in 1 centimeter, it will keep the hands for a long time. There is no need to paste them, because there is no proposal which will do them loose work, and it is good that they let them dry and arms should go to the weapon.

Today, due to the technical development of robot apple in human life, it is necessary to remove the natu-resin and virtual barriers such as the speed of such robots to choose and keep objects. A conveyor belt is the carrying medium of a belt conveyor system (small to ten belt conveyors).

A belt conveyor system is one of many types of express or one of the systems. A belt conveyor system consists of two or more pulls (sometimes referred to as drums), in which there are endless loops of the middle conveyor belt - which revolve about them. One or both pulls are operated, moving the belt forward and moving the material onto the belt. Pully operated is called drive pulley, while unpaid pulley is called idler pulley.

Belt conveyors have two main industrial classes; Generally there are materials, such as boxes and bulk materials running inside a factory such as heavy quantities of resources and agricultural materials such as cereals, salt, coal, ore, sand, overload and transportation. Today there are various types of conveyor belts, which are ready for the message of various types of materials available in PVC and rubber materials. Belt consists of one or more layers of material. In general material management, several belts are two layers, one layer of linear strength and



shape material is called a cover and an over layer called the cover. The corpse is often a knit cloth that contains a string and cloth. The most common carcass is polyester, nylon and cotton. Coverings are often various rubber or plastic compounds referred to by the use of the belt. Uncommon applications such as silicon for heat or gum rubber can be covered with more foreign material when traction is necessary.

III. HARDWARE DESIGN OF PROPOSED SYS-TEM

In this letter we used a weight based object sorting on the conveyor belt using DC motors and robot arms. The entire system's control device is a micro-controller in which load cell module; The DC motors of the robot are interfacing through the motor driver. When the Ed-Aid was detected using the proper weight-based object load cell, those objects are sorted using the robot box to drive and maintain using DC or servo motors with drivers. Microcontroller examines the data with embedded program in it and the conveyor belt's DC motors and robots work properly on the arms. The microcontrollers used in the project are using Embedded C language. The proposed work model of the system uses the load cell device to measure the weight of objects placed on the conveyor belt and separates them using the robot arm interfaced with DC motors. This style of message is ideal in the application of warehouse selection, or where the cartoon product is being transmitted.

IV. CONCLUSION

An existing object sorting on the conveyor belt was designed "Advanced Weight-based Object Sorting System in Distribution" that was designed to automatically control the objects on the weight of robotic arm objects, which can be loaded automatically by the load cell device. The entire system's control device mentions predefined data in the program based on the weight of microcontroller objects, and the appropriate action on the robot is a microcontroller. The robot can also be extended by connecting the wireless camera to the robot, and then we can see the object through a manufacturing process. This minima provides pressure accumulation, quiet operation and easy installation. Line shaft is suitable for transport of products within the conveyor warehouse or manual staging operations, where light weight coaches, haul bins and other products need to be moved, thereby requiring directional changes for different types of situations. . Limited with this style of conveyor, the minimum pressure accumulation of the product can be obtained for this product line directly under the module, cubs and merge, slave drive assemblies, roller brakes, pneumatic blade stop, personnel gates and many other accessories. . Due to the nature of the line shaft, a drive can make a distance of several meters from the conveyor, making it extremely economical. Microcontrollers will receive the signal and move the DC motors in the forward direction. Similarly, the appropriate work of robot arm has been predefined in the microcontroller program and the robot completes the relevant tasks, such as the robot movement forward, backward, left, right, top, bottom, open closed-reaction. We are using relay as a DC motor driver. And for each DC motor, the IC should be connected to the microcontroller to enable the pin. Here we are using 2-DC motors connected to 4-relay boards. Wheels are connected to DC motors. The unique feature of the design is that the wheels can rotate freely in speed, such as only using the GPRS and GPS, height, length and width of our personal computer, we use this robot in so many areas. Can be used in bottling industries and we can handle many situations. By adding IR sensor to Ross, we can get details of counting about the objects that went on the conveyor belt and can send it anywhere, such as SMS, MSAIDs, like user mobile phones, PC for data Wireless Data Transmission Base This robot can also be increased by adding temperature, gas, smoking sensors, we can get leakage of any gases, smoke in the area of the hazardous area, and gives information to micro-micro controller and micro controller. The information is from the transceiver that we can get the data in the PC side.

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