

## LEARNING THE WORKING PRINCIPLE OF THE MACHINE FOR TRANSPORTING RAW MATERIALS AND PACKAGING

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**Abstract.** Many owners of small food enterprises industry, as well as owners of small and medium-sized grocery stores, weigh and pack their products by hand. Especially owners of small and medium-sized food processing plants such as Chiwda have to carry out the process of weighing, filling and packaging manually. The sealing process is carried out using candles. This process requires a lot of time and effort and therefore limits their production and business.

**Keywords:** automatic weighing, automatic filling, automatic packaging, Arduino Uno board, stepper engine.

### INTRODUCTION

Today, industrial automation has become a global trend in automatic weighing multi-head and packaging machines manufacturing. are fully automatic weighing and packing machines. The machine is used for packing seeds, vegetables, dry fruits, pharmaceutical and coffee industries. Can pack the product in bags, sacks and sacks from 10 grams to 100 kilograms. It fills the product into bags and seals the product in the center. He based on traction cable mechanism or belt lowering mechanism. Automation is certainly needed as today's manufacturers face very low margins. Companies must automate to provide what is needed to today's customer, when they want it and at the price they want pay. Automation, low wages, individualization, mass production, flexibility and information have contributed to the growth of production. The whole process of weighing and packaging is carried out by means of electric pneumatic motors. The equipment must be controlled by a programmable logic controller. Whole system performs the following processes:

- I. Automation with microcontroller
  - II. Stuffing material into a bag
  - III. package
  - IV. Sealing
- Automatic weighing and packing machines provide a wide range of applications in various industries industry.

The biggest advantage of packaging and weighing machines on the market is that they are advanced and provide the best possible coordination with other production processes. It is important for the food industry to adhere to market standards in order to ensure the value of their brand and in the best possible way comply with industry quality standards. It is important to note that the customized solutions offered by food packaging machines in India today are modified to suit a particular set of products in the process.

### ANALYSIS AND METHODOLOGY OF THE LITERATURE

Tawanda Mushiri and Charles Mbohwa, Johannesburg, South Africa [1], September 10–11, 2015, entitled "Designing a Small-Series Grain Packing Machine Suitable for Developing Countries." In particular, this invention relates to the creation of a small grain

filling machine that is capable of sealing any grain at a rate of 1 kg per minute. The invention is specifically used for automatic weighing and packaging and sealing of food products using a cheaper and more efficient alternative to packaging machines. The aims of this invention were:

I. Design a machine that runs on simple mechanical principles for ease of use and maintenance.

II. Designing a car costing about \$300.

III. Build a durable machine by choosing the right material that can last more than 5 years.

The concept consists of a hopper from which the packed contents are poured. The amount of material in the film is controlled by rotating the rotary weigher under the hopper. The balance weighs the amount of content, and its rotation provides a path for the content to the plastic film. A pair of rollers under the weighbridge forms longitudinal seams between two sheets of thermoplastic films.

The remaining pairs of rollers are separated by cutting the finished package from the web. The coil then falls out of the socket under the gravity of the slider. The width of the bead determines the thickness of the seal. The bottom line is that the design works on simple mechanical principles. Target expenditures are justified as shown in the bill of quantities. The machine is able to pack 1 bag of 1 kg per minute. I recommend upgrading the machine so that it can collect a number of loads, and the plastic the spring automatically moved out of the plastic holder. Shashank Lingappa, Vijayavital Bongale, Srirajendra, Hasan, Karnataka [2], Title "Inexpensive Controlled Automatic Packing Machine This invention involves the introduction of simple pneumatic, hydraulic, PLC. mechanical and electrical devices to improve production efficiency. The title is "Inexpensive PLC Controlled Automatic Packing Machine". This invention provides for the introduction of simple pneumatic, hydraulic, mechanical and electrical devices in order to increase production efficiency. Title: "Inexpensive" automatic packing machine controlled by PLC. This invention provides for the introduction of simple pneumatic, hydraulic, mechanical and electrical devices in order to increase production efficiency.

### **DISCUSSION AND RESULTS**

This project provides information about the developed machine, which automatically weighs and packs products using microcontroller and sensors. The idea is to manually place the bag, then automatically weigh, fill and pack. The aim of this project is to reduce human effort and time. Reducing the cost of the machine is the main advantage of our development. The design of the machine is based on simple mechanisms and is easy to mount. Packing speed is increasing resulting in increased production and business. This eliminates the traditional packaging and sealing method. This process reduces the number of employees. The main comparison between the old and new machines is that it reduces the time required for filling, packing and sealing. The system saves time, effort and manpower compared to older machines. In addition, the price of a new car is much lower than the old one.

### **CONCLUSION**

An inexpensive automatic machine has been developed for weighing and packaging that can carry out the weighing, filling and dispensing of bags with maximum efficiency.

The operation of this machine is simple, and the possibility of error in calculating the weight is almost negligible. The time and effort required for manual weighing and packing is kept to a minimum. The process is completed in 3 steps. The first step is to set the input value; the amount of material at a given input value is sent from the hopper to the funnel. At this stage, the spinning disk acts as a gate and turns on/off depending on the input value. Weight calculation produced using a weight sensor. The second stage consists of a miniature vacuum pump that widens the opening of the bag to make the filling process easier. In the third step, the package is moved out of the machine using a belt conveyor. The only task the operator has to do is to enter the input value and take bag after the process is completed.

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