



# **UNIVERSIDAD TÉCNICA DEL NORTE**

**FACULTAD DE INGENIERÍA EN CIENCIAS APLICADAS**

**CARRERA DE INGENIERIA EN MECATRÓNICA**

## **EXECUTIVE SUMMARY**

**TOPIC:**

**“WEIGHT CONTROL SYSTEM FOR FILLING MEAL BAGS 50 KG”**

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## EXECUTIVE SUMMARY

In small and medium-sized flour milling industries is done manually weighing of your product. Firstly located at the hopper outlet to the sack strapped leather proceeds proportionally to manipulate a lever which opens the retaining cap product and make it fall flour with the aid of internal vanes containing internal system and closes to note that the bag is full. Then he removed the straps and passes a digital scale which is extracted or placed flour to determine the required weight.

To obtain a desired weight leads to certain secondary factors, so that is iterative and the filling time is not appropriate, makes workers are tired of doing and often the finished product is not according to the rules production techniques.

Today with the advancement and various forms of technology available, you can innovate with a control system which helps you solve the weighing procedure sacks of flour, keep a tally of daily production without the need for it count at the end of the day's work and further modernize the facilities. This project consists of a heavy control system in the process of filling of sacks of flour in quickly and accurately as production standards, without the need to do it manually as it has been doing in the small and medium milling industries, and consists essentially of three subsystems. The control system is designed to fill and weigh 50 kg bags.

Control subsystem, which performs data acquisition sending weighing platform through a load cell sensor for measuring the amount of product to be filled, this signal is input to a computer program that will trigger a PLC a closure and opening of the hopper outlet. It also has an interface that will display a count of the bags produced daily.

Mechanical subsystem, consisting of an adjusting mechanism of the sacks at the outlet of the hopper with the purpose of maintaining the bag subject and productose prevent spillage during filling, and a mechanism for opening or closing the throttle valve is incorporated into the hopper.

Response subsystem which are connected to the solenoid to actuate pneumatic cylinders to start and end of the filling and weighing of flour.

Filling and heavy sacks of flour in small and medium industries milling is a process that has been carried out manually, thus securing the bags out of the hopper and weight control is done by an operator, it is necessary to optimize this process by a control system, this will decrease the time in the process, allowing for greater production and optimizing human. Production on data taken by observation can be determined that within one hour weigh forty-five (45) bags of flour being a very low production needed for one hour, with the implementation of this control system to achieve deepens production at least sixty (60) sacks hour, plus upgrade the facilities of the company implementing current technology that helps draw in downstream processes.

With the addition of this control system to process heavy filling and has managed to increase the daily production optimizing time and costs of a milling company.