
**TEXAS INSTRUMENTS ELECTRONICS ONLINE
CHALLENGE
BRAMPTON ROBOTICS EDUCATION
TEAM 1140z**

**Project Name: Boreal Science Weighing Machine
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**Date: 12 Jan 2016
Document Version: 3.0
Disposition: Final**

Boreal Science Weighing Machine

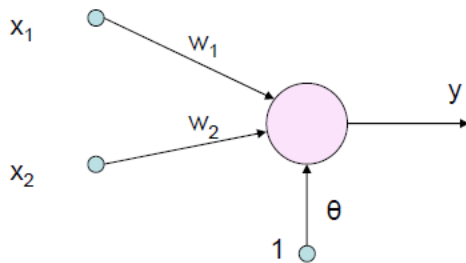
Background

Team 1140z selected Weighing Machine as this forms one of the key components of our day to day life. This is one of the units that was available in our school. We decided to dismantle the unit and start researching on each component of this complex unit.

About the Product

A Canadian company manufactures this balance by the name Boreal Science. This weighing balance is used in laboratories and jewelers where small weights are used to precision. Maximum limit to this scale is 300 grams. When we press the on/off button and place a weight on the balance, the pressure sensitive calibrated scale converts the pressure sensed due to weight and transfers this raw data to the arithmetic logic unit. The arithmetic logic unit receives this input and applies a pre-determined formula and creates an output (Figure below). This output is still in electronic signals and these signals travel through the silver/golden lines called bus lines to microprocessors attached to the LCD display.

Microprocessors translates these signals to make them appear on the LCD screen that could be readable.



The power PCB receives AC current and converts into DC current that can be used to power the scale. The scale also has spirit filled **microprocessors** that make sure that the machine is always **90 degrees** to the ground. If the machine were not in this position, it would not display the exact weight. This is where the “0 button” comes to use. This button enables us to make sure that the initial reading on the LCD screen is 0.00grams. The main **PCB contains capacitors** that help in storing charge and

prevent short-circuit under improper voltage. There are resistors on the PCB too that limit the current required for specific components of the PCB.

Name: Boreal Balance 46754-00 Scale 300g

