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Electronic Automated Product Dispensing

The researcher often assists in the production and packaging of a granular product to help a local business. The production line requires excessive manual labor in the handling of thousands of pounds of product every day. This problem sparked an engineering idea to refine the process by automation. A working prototype will be designed and fabricated to ultimately be scaled-up to life-size automated product dispensing. It was hypothesized that the system should have at least +/- 5 grams deviation from the weight pre-sets of 150 g, 175 g and 200 g. The basic design included adapting a load cell equipped with a HX711 module, a stepper motor powering a conveyor made from Erector Set pieces, a hopper bin made from a plastic bottle mounted on a wooden frame, Raspberry Pi equipped with a breadboard, 3 push button switches for weight pre-sets, a power supply, transistor, and a monitor, keyboard, and a mouse. The design and fabrication of an electronic automated product dispenser was successful in dispensing accurate weights of product. For 150 g dispensed, there was a 1.4 standard of deviation, the 175 g pre-set showed a 1.3 deviation, and 200 g of product dispensed demonstrated a 1.3 deviation.