

Future Foundation Design Challenge

Vex Vending Machine

We are Rebel Robotics from Haralson County High School, and we're submitting our VEX Vending Machine in to the 2011 Future Foundation Design Challenge. Many people ask, what gave you the idea of building your own vending machine. It all started when our Engineering and robotics instructor approached us with the issue of the lack of funding in our TSA program. She wanted us to come up with a plan to increase funding for the program. We decided that since the TSA store was only open when TSA members were present in class to run it, the other classes who do not have any TSA members in them were a potential point to increase income. But we still had the problem of not having any one to run the store in those certain classes, so after much brainstorming and pondering we decided that why not make it where the store could run itself, only requiring to be checked every so often. And with that the idea of a vending machine was born. As we began to develop this contraption it slowly grew and grew and finally after two months' time we had an end result, a six ft. tall three ft. wide vending machine, with six shoots and a collection box for the money. Now allow us to explain the inner working of this machine. First you start by inserting a quarter into a slot on the right side of the vending machine the quarter travels down a shoot landing on a pressure switch. Once the pressure switch is activated, six buttons on the front face of the vending machine become operational. Once a button is pressed, each corresponding to its own shoot, the arm on the shoot allows only one of the specified products to be dispensed while simultaneously stopping the rest of the products from also being deposited. Once one of the buttons on the front face of the vending machine is pressed it then signals a motor attached to the pressure switch in the collection box, to move slightly to the side allowing the quarter, that was deposited earlier, to fall into a collection pan, allowing the pressure switch to disengage, thus permitting only one product to be dispensed for every individual quarter. This whole operation is run off of a rechargeable six volt battery allowing us to mobilize our store anywhere in the school according to where we see fit. We as the designers and builders of our vending machine have had a great time while in the construction process, and it is still providing us with many more great times even now. Not only did the vending machine increase sales in the TSA store but the profit made has contributed to brand new equipment for the engineering and robotics class that students will use for years to come.