Pellet Sorter Project
Design Notebook

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Aggie Honor Code

"An **Aggie** does not lie, cheat or steal or tolerate those who do. The **Aggie Code** of **Honor** is an effort to unify the aims of all Texas A&M men and women toward a high **code** of ethics and personal dignity."

Meetings

Date	Team Members Attended	Minutes
2/22/18	All	20
3/02/18	All	120
3/04/18	All	70
3/06/18	All	200
3/15/18	Jared, Cooper, Ryan, Katie, Jon, Mason	130
4/02/18	Jared, Ryan, Katie, Jon, Allan, Mason, Jorge	270
4/03/18	Cooper, Jared, Jon, Jorge, Allan, Katie	310
4/11/18	All	270
4/13/18	Cooper, Jared, Ryan, Mason, Jon, Jorge, Allan	300
4/14/18	All	300
4/15/18	All	180

Total: 2170 minutes

Rules of Group

1. Always stay on task
2. Update design notebook after every meeting and demo
3. Implement new ideas for Pellet Sorter Machine
4. Attend meetings promptly
5. Work as a group and not as individuals

Design Requirements:

- Compact, easy to carry
- Made mostly out of legos and spare cardboard
- Dispenser should be steady and only dispense one marble at a time
- Color sensor must be stationary in order to read accurate RGB values
- Minimize the risk of marbles falling out of the device
- Have two seperate bins, one trash, one keeper bin

Engineering specs:

- Smaller than 2x2ft
- Successfully dispense, at most, 75 pellets in final demo (marbles)
- Dispense correct dosage in under 3 minutes for each barcode, under 10 minutes for all three barcodes
- Weigh less than 5 lbs
- Keep extra materials purchased under $40

Sub Task 1: Due 2/13

Sub task 1 consists of a pellet dispenser which is able to dispense individual pellets in a controlled manner (i.e. the process dispenses only one pellet at a time, can be easily turned on and off, and has an adjustable rate).
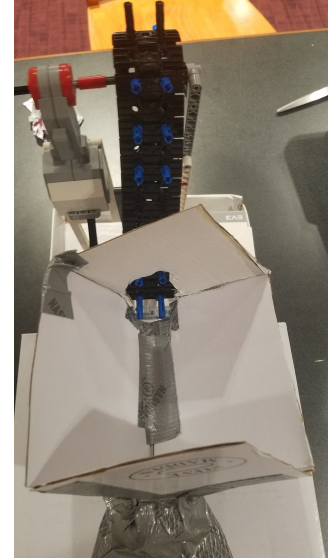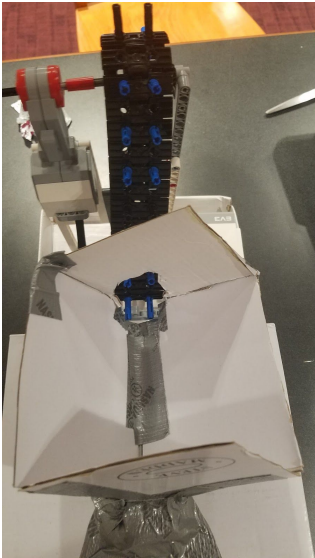
LabView Files:
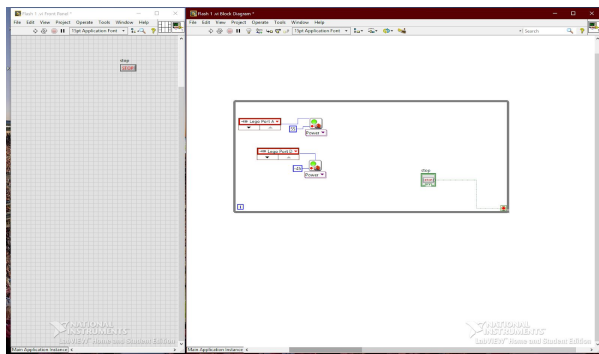
Potential Improvements:

We need to make the dispenser more consistent in its dispensing rate, and need to be more stable in its construction.

Sub Task 2: Due 3/8

Sub task 2 consists of one of the two pellet dispensers with any improvements made after sub task 1.

Pictures:

Improvements:

For the second subtask we worked off of group 11's dispenser and made minor adjustments. The dispenser was made up of a pvc pipe, one motor, pieces from the styrofoam, a lid to the pvc pipe and some cardboard.

Performances Reviews and Comments:

Under the weight of 75 marbles, the styrofoam rotating disk that dispenses the marbles compressed. We need to re-make this piece as well as find a way to prevent jams in the dispenser. Perhaps we can make it dispense in jerky motions. We also need to rethink the shape of the styrofoam to be more consistent in preventing 2 small marbles from dropping.

Sub Task 3: Due 4/5

Sub task 3 consists of two parts, a barcode reader and a pellet identifier. The barcode reader has to store a barcode and display the corresponding pellets while the pellet identifier has to display the color, size, and material of any given pellet.

Pictures:
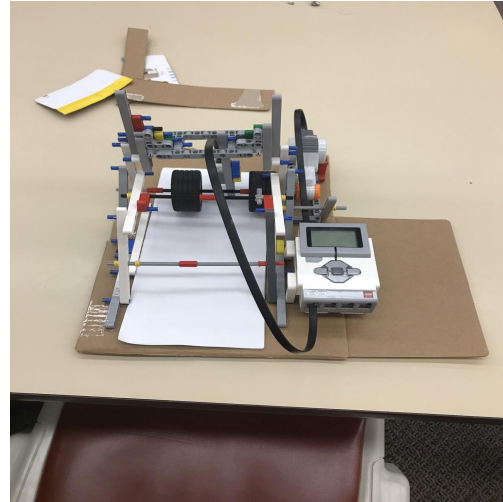
Improvements:

As two separate teams, we created a barcode scanner, as well as the pellet identifier. There were no improvements, as these were new devices.

Marble Identifier:

We had issues with the consistency of the color reader, thus we changed it from moving to stationary. The motor connecting the touch sensor also had some inconsistency with it. We need to elevate the whole system to accommodate a trash and keep bin.

Barcode Reader:

For the barcode reader we had trouble with the tires moving the paper. The tires were sometimes too far from the tire to move it or too close and would jam. We need to continue to add and subtract pieces of notebook paper until this distance is ideal.

Performances Reviews and Comments:

The subtask was successful. The barcode and marble reader were both consistent and correct in their readings. Now, we need to find a way to connect the two bricks together, and transfer data from one brick to another, as well as calibrate the color sensor. There must be a way to send data to a computer and send that to two separate bricks.

Final Demonstration: 4/17-4/19

In the final demo, we must find a way to connect both bricks to each other, that way they can communicate codes to each other and run the programs needed. The build of the project needs to be very sturdy, and the dispenser must be repaired and ready to run smoothly. If we cannot find a way to fix these minor errors, it could dramatically affect our final demo.

Pictures:
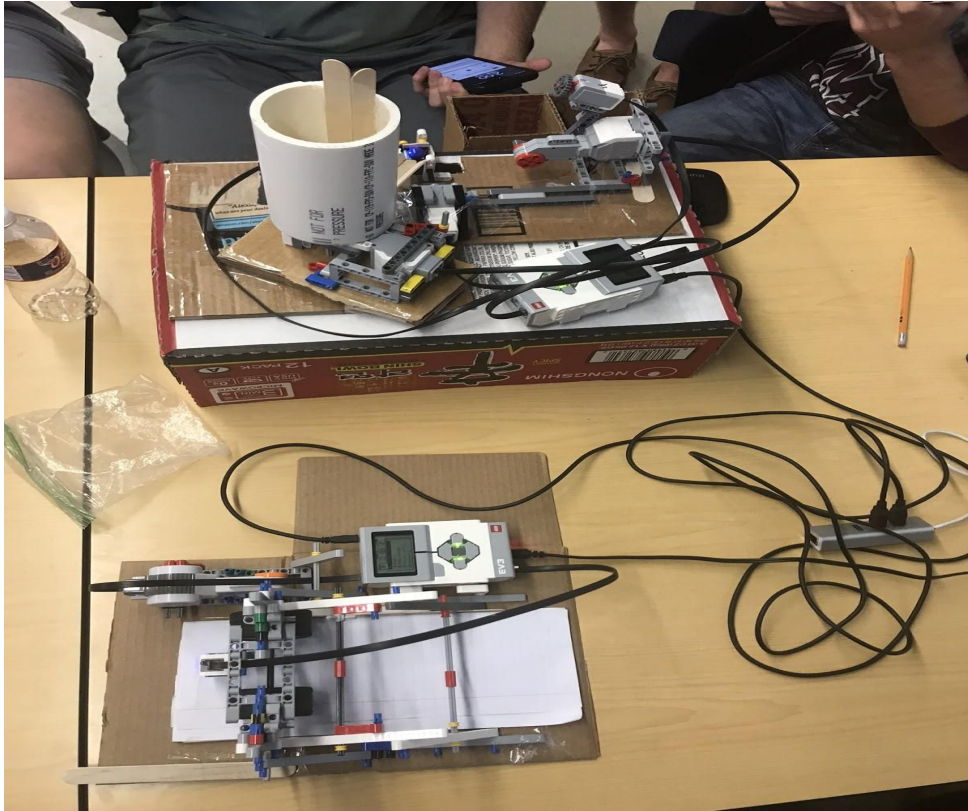
Improvements:

We connected the two bricks by connecting them both to a computer with a usb. We re-calibrated the color sensor and made it more fool proof in its color detection. We made small adjustments to the height of the barcode scanner to make it a smoother transition. We made code that turns the binary received into strings saved into an array.

Performances Reviews and Comments:

Could be faster, and be easier to display outputs, however it was successful. There was the issue of there being two red marbles of slightly different colors, and that messed us up, but we were able to patch that. The issue of taking in 3 barcodes at once also caused some issues, but were were able to patch the code before the

end of class. If it were to be done again we would attempt to connect the bricks without the help of a computer.