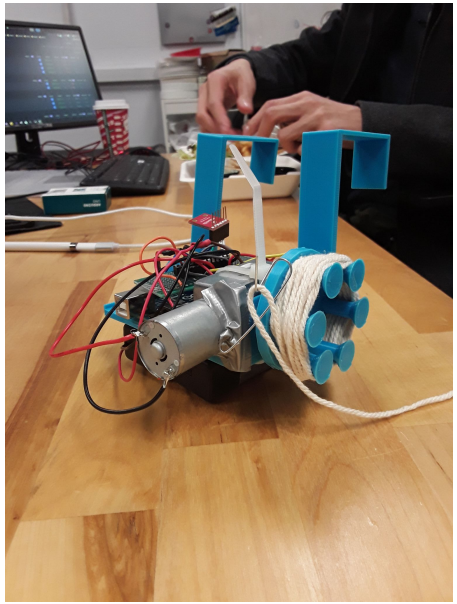
Cover Page

The Auto-Door-Closer-3001



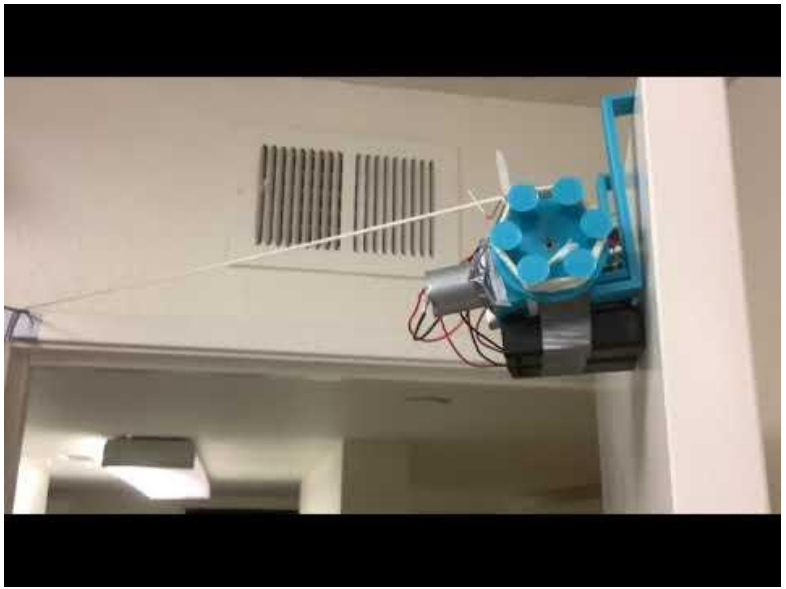
and its loyal servants,
Amy Koh,
Richard Gross
Rizwan Syed
Vu Luong

Door page

Come on in!

Introduction - Project overview

The Auto-Door-Closer-3002 is a gizmo that has the incredible capability of closing doors without the help of the fragile, flimsy, and downright unreliable human hands



Purpose and Motivation - What problem are you trying to solve and why?

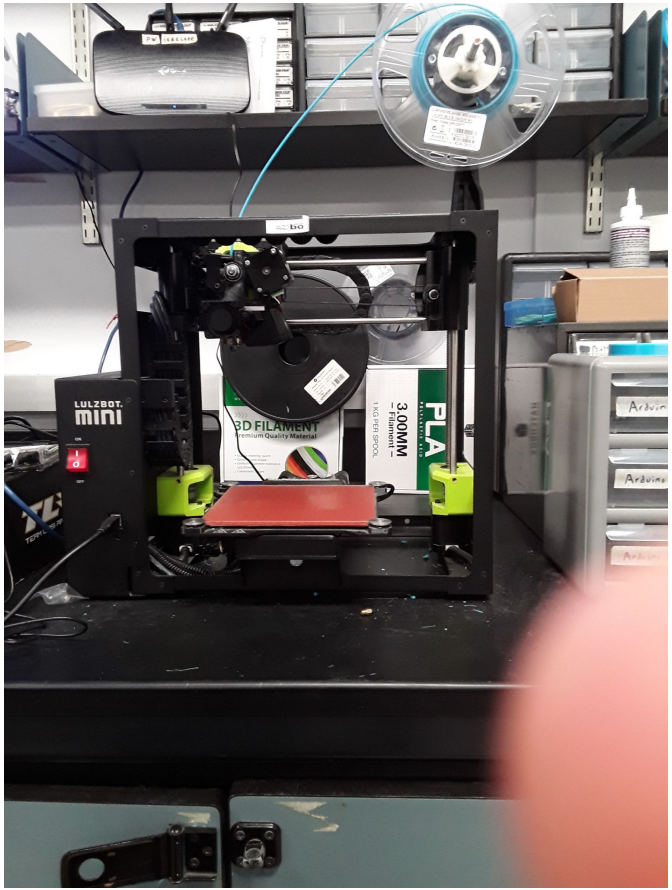
The Auto-Door-Closer-3003's purpose is to close doors, but *automatically*
Forget to close the door behind you all you want, since it's got you covered!

Timeline of Work Done - Weekly progress and accomplishments

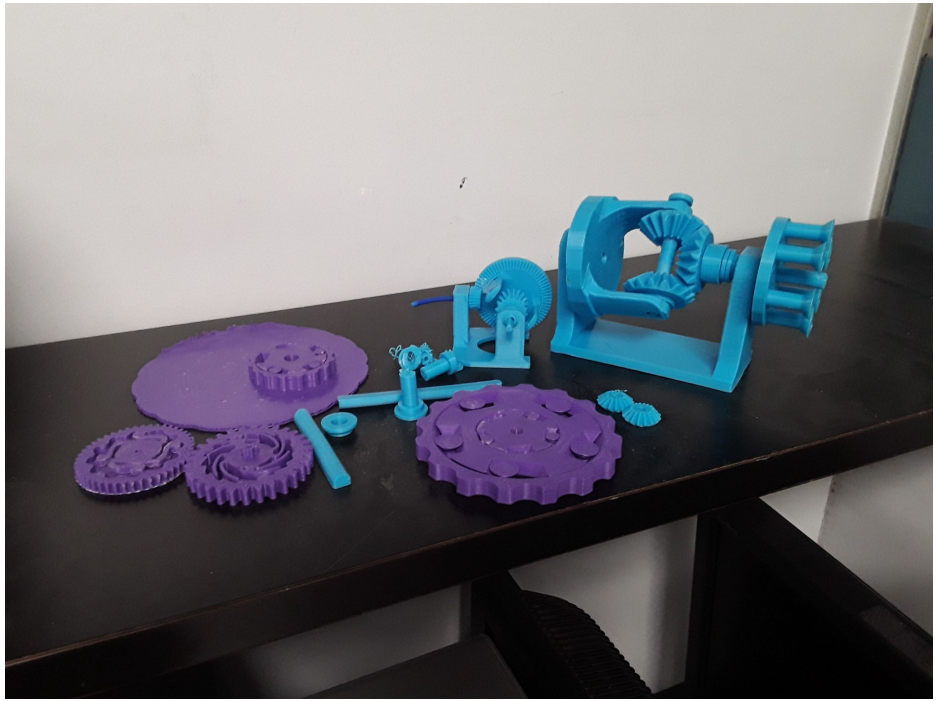
The Auto-Door-Closer-3004 transcends the concept of space and time, and came into existence much like god, instantaneously and with much explosions
The Auto-Door-Closer-3005 was kind enough to insert itself into our weak human brains and grace us with is magnanimous presence, and we are eternally grateful

We met every thursday in the IEEE project space, except for the last week, where we met on wednesday as well
First week we decided on project and ordered parts
Second week we figured out how to get stuff like the motor working and responding to arduino
Third week we 3D printed prototypes and got stuff together half haphazardly
Fourth week we finalized project and moved away from simple breadboard to soldered stuff, and put everything together and made it look nice

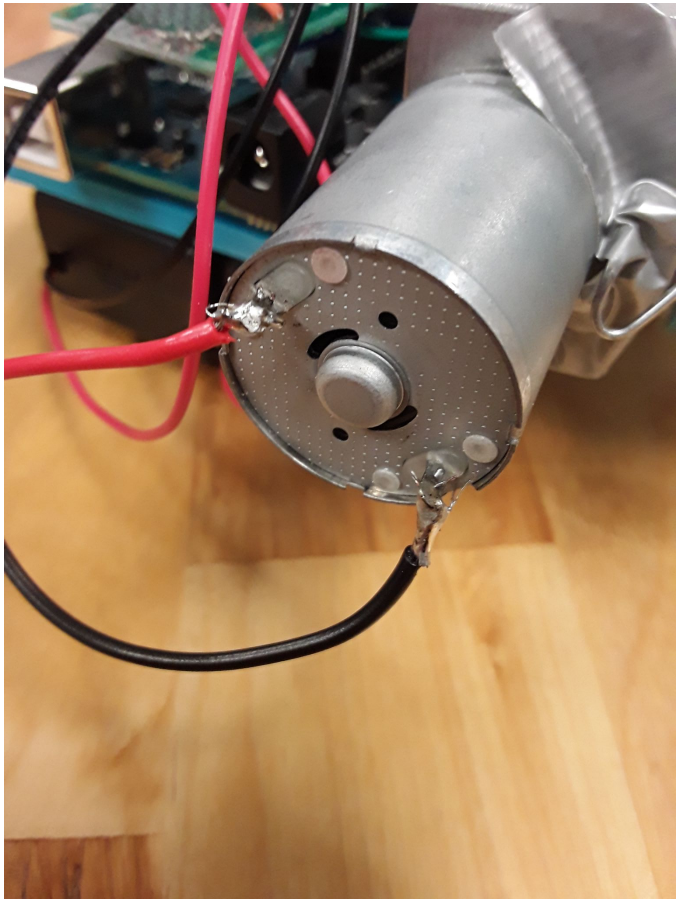
Agents hard at work battling the soldering machine



Our unofficial 5th member,
Printer of Dreams



The Failed Prototypes
(Their sacrifice will not, *cannot,* be forgotten)



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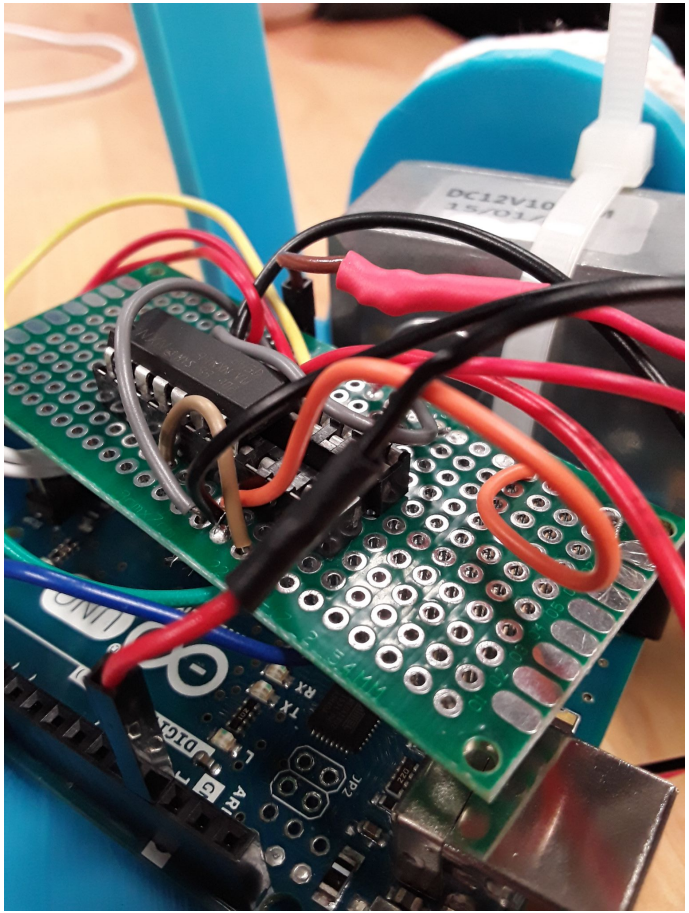
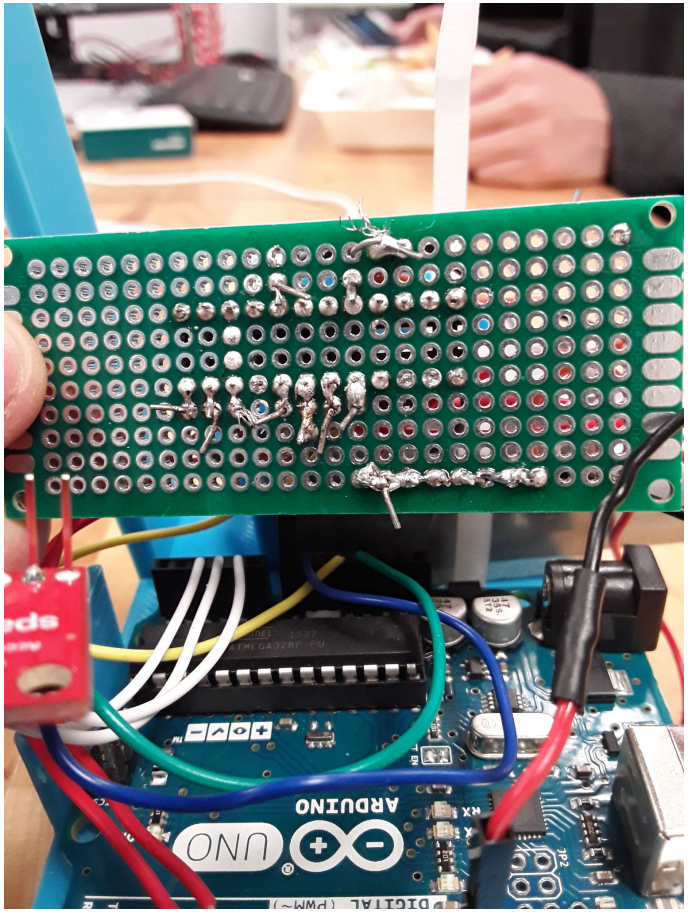
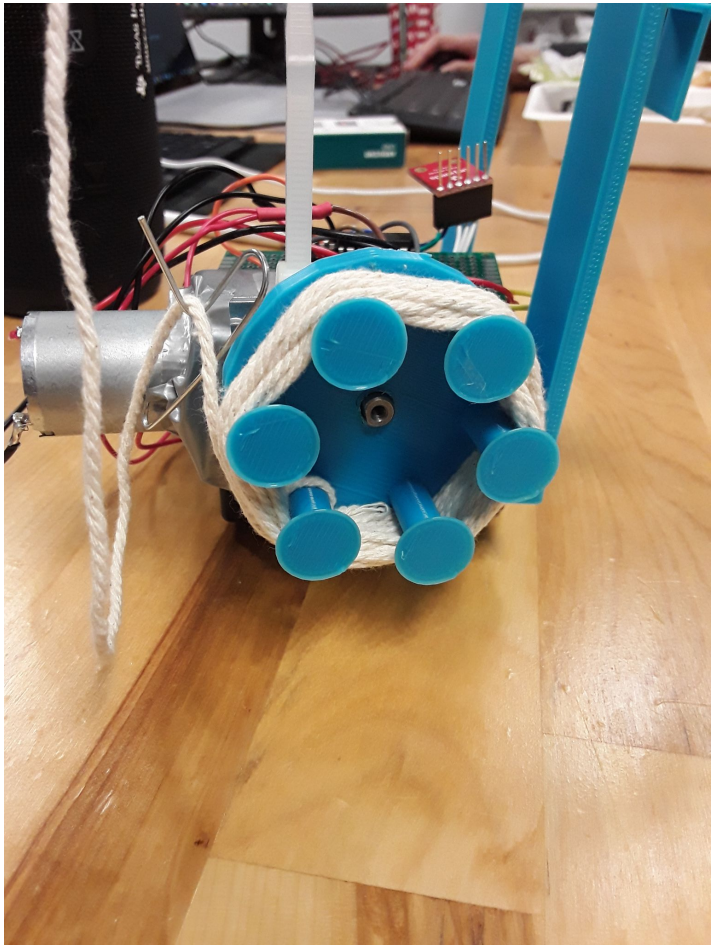
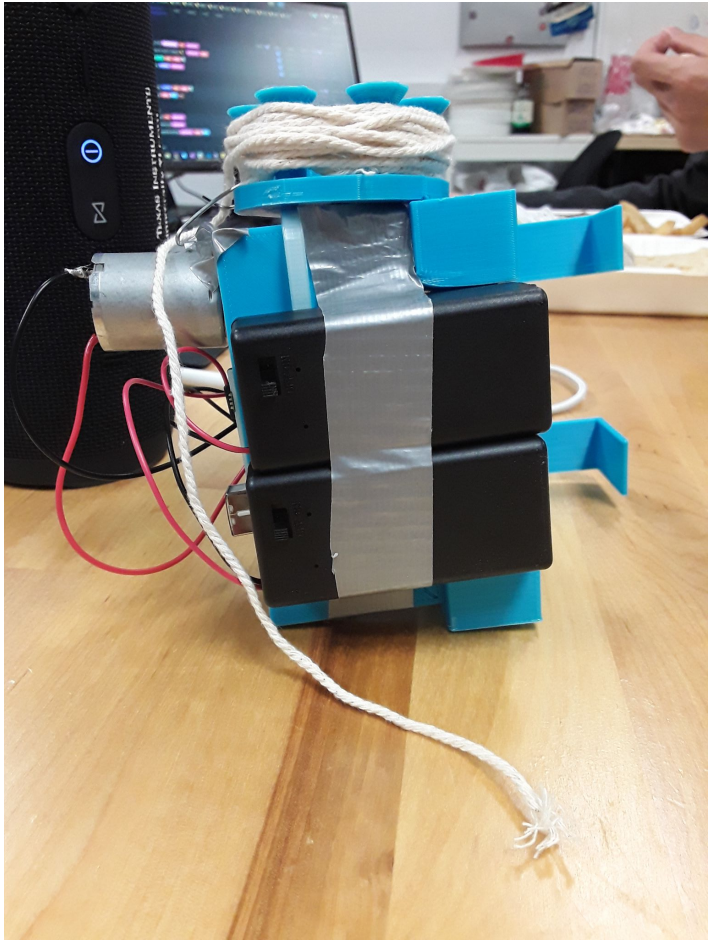


Soldered wires!

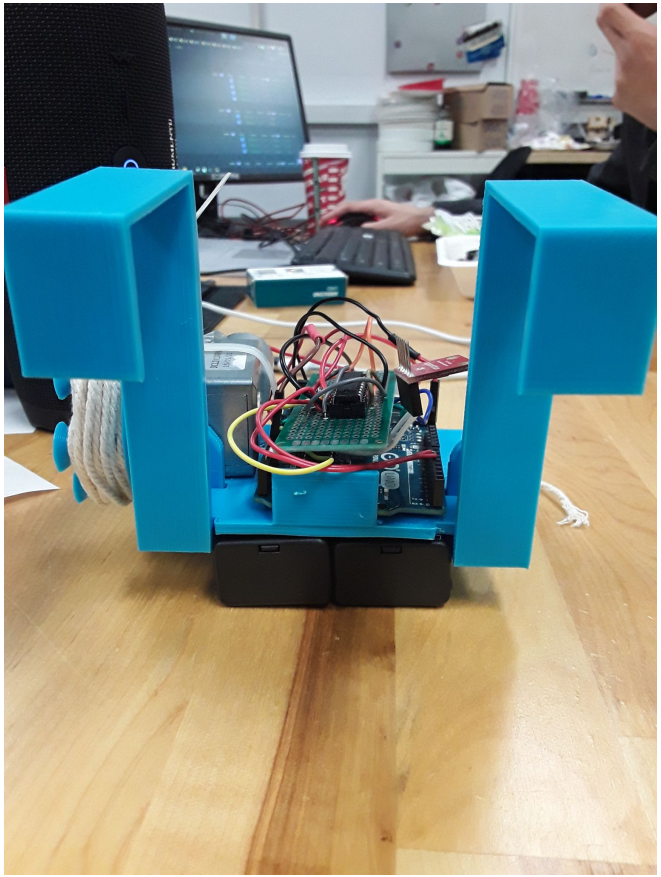


Super paperclip has the incredibly important job of keeping string from tangling

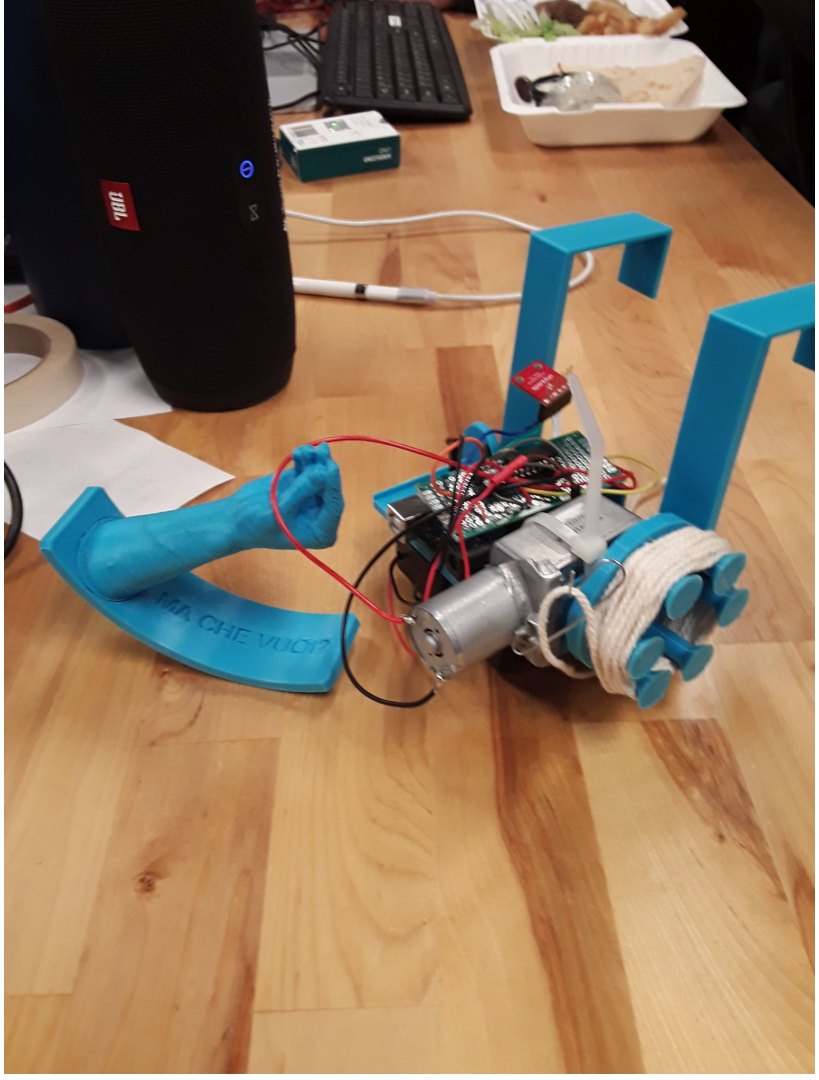


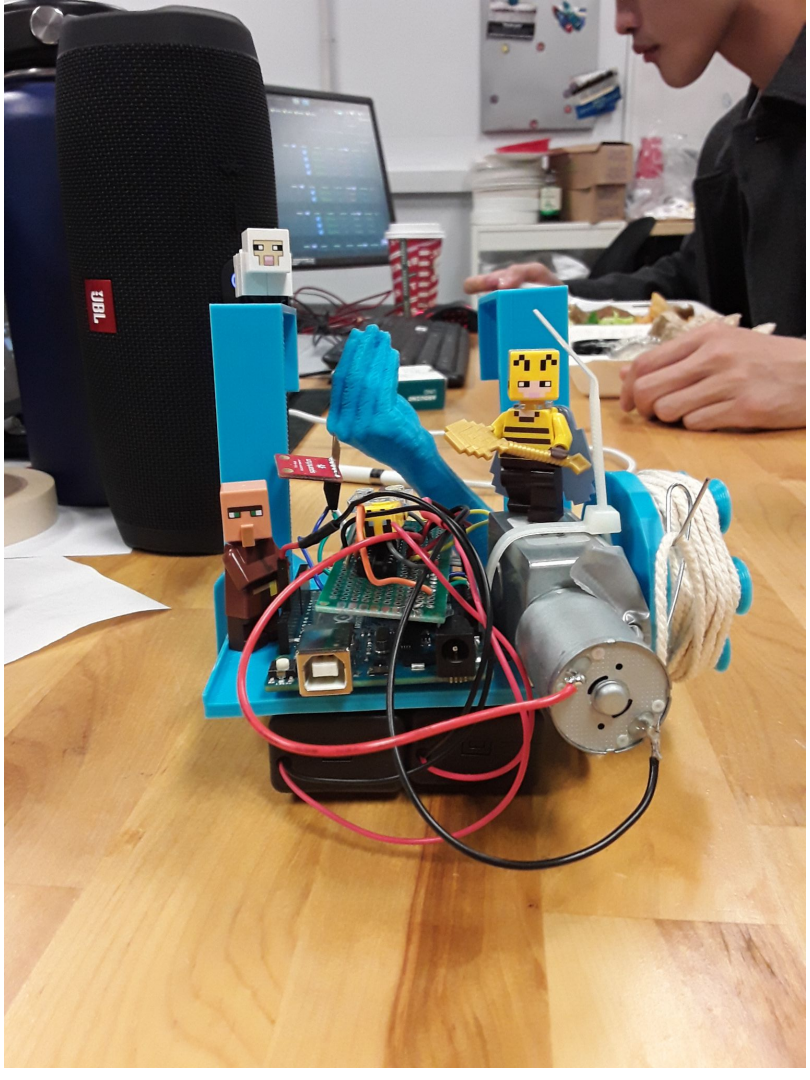


One battery to power the microcontroller, one battery to power the motor, and tape is the glue that holds them together. Amen



A salacious shot of the machine's back hooks. Hoo-boy...


JBL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Step by Step Usage Instructions - Detailed instructions for a first time user

That’s the kicker. The Auto-Door-Closer-3006 has no need for instructions, as it is a strong independent machine that is self sufficient and has no need for uncalled for human help. If there is a door to be closed, The Auto-Door-Closer-3007 will close it.

Picture this scene: You open the door. The machine in its all glory, detects this with its accelerometer, waits for the door to finish opening, and begins to spin its spool. You watch in fervent awe as the door, auto-mechanically inches to a close. *Hallelujah*, you think, and then say aloud, first with some hesitation as you think it silly to speak to a machine. You repeat it again, as you come to the realization that there if there is ever a time to hallelujah, it is now. Hallelujah. *Hallelujah.* ***Hallelujah!*** You cry yourself hoarse. It would be more awkward to stop now as you have already begun. **Hallelujah Hallelujah Hallelujah!** A single tear sheds from your left eye. At last, you have found your purpose in life.

Team Member Roles and Contributions - A paragraph from each teammate on their role and responsibilities/contributions

The Auto-Door-Closer-3008 contributed its existence to us, and its birth into our world is its largest contribution to the human race. We team members, as parents to robot Jesus, have the lesser roles of… and were responsible for raising The Auto-Door-Closer-3009 in somewhat important ways such as… though make no mistake, The Auto-Door-Closer-3010 is a powerful enough entity that it would have created itself without parents to raise it.

Vu: Help with the arduino code, help decide what materials to buy, help assemble the parts and make it look more clean and organized
Richard: 3D printed all the stuff and cleaned code
Amy: Code and solder and wiring and arduino
Rizwan: Wrote arduino code to achieve motor function, helped to solder components onto PCB and with wiring according with IC

Difficulties and Challenges - What obstacles did you encounter and how did you overcome them?

The Auto-Door-Closer-3011 knows no obstacles too great, no challenges too difficult to be conquered. We entrust our lives to The Auto-Door-Closer-3012, who will bring about the Singularity and save humanity from its hubris.

There were two big challenges that took the most time putting everything together. The first was figuring out how to get the motor to turn both ways. We initially bought relays to solve this issue, but were advised to use an H-bridge instead. Getting that working was pretty cool. The second big challenge was soldering everything together, which took a lot of time and mistakes. We had multiple scenarios where after soldering everything it did not work regardless, which just ended up being due to faulty soldering work every time.

Possible Improvements - If you had more time or a larger budget what changes would you make?

The Auto-Door-Closer-3013 cannot be improved, it is perfect
Its younger brother, the bottle of water hanging on string and pulley connected to a door, is technologically inferior and unable to hold against gravity, weak as it is

Our initial plan was to have the door closer detect between not moving and stopped and do fancy stuff with that information, but it turns out it closes the door so slowly that the accelerometer could not tell the difference between moving and not moving beyond the initial door opening. sad

Conclusion - Summary of achievements

The Auto-Door-Closer-3014 is the greatest achievement to grace mankind
This is enough of a summary as all other achievements, even the second greatest achievement, are negligible in comparison by every single metric imaginable

We used 3D printing, arduino coding, breadboarding, soldering