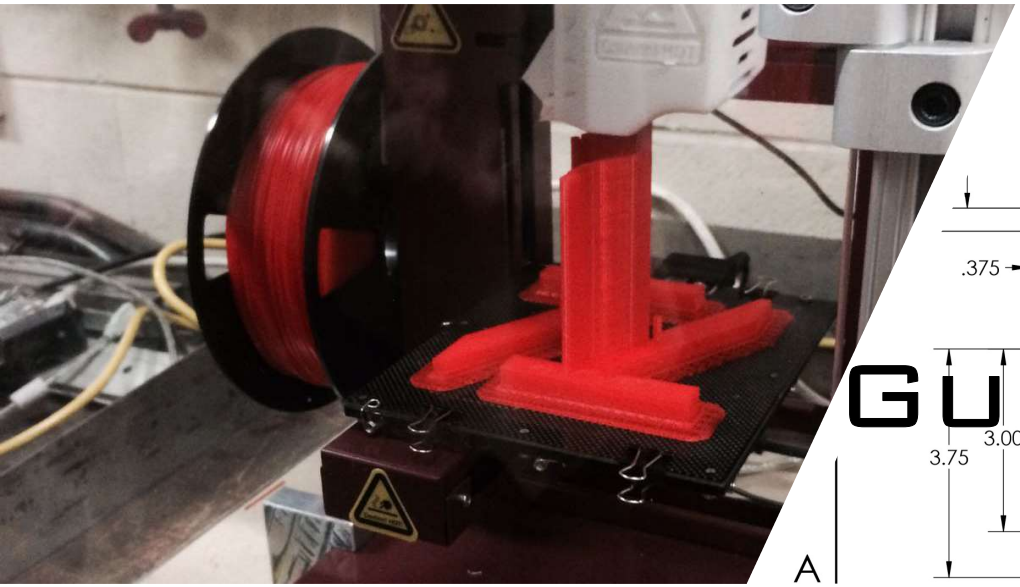
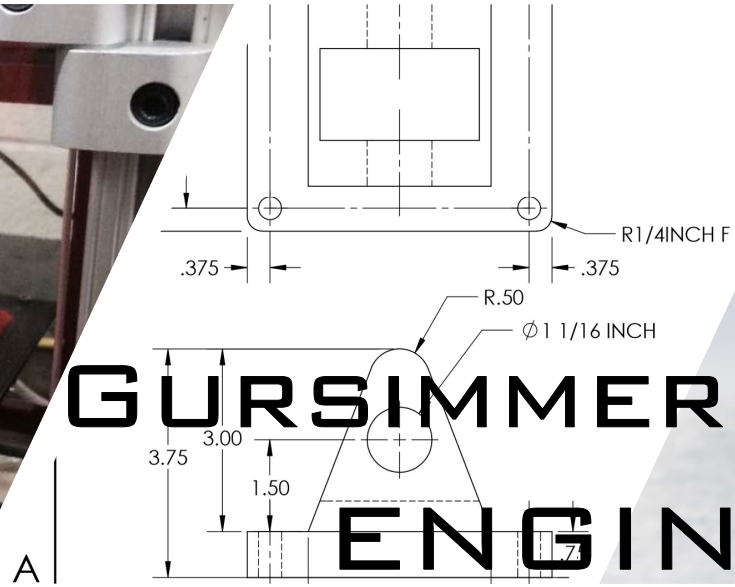
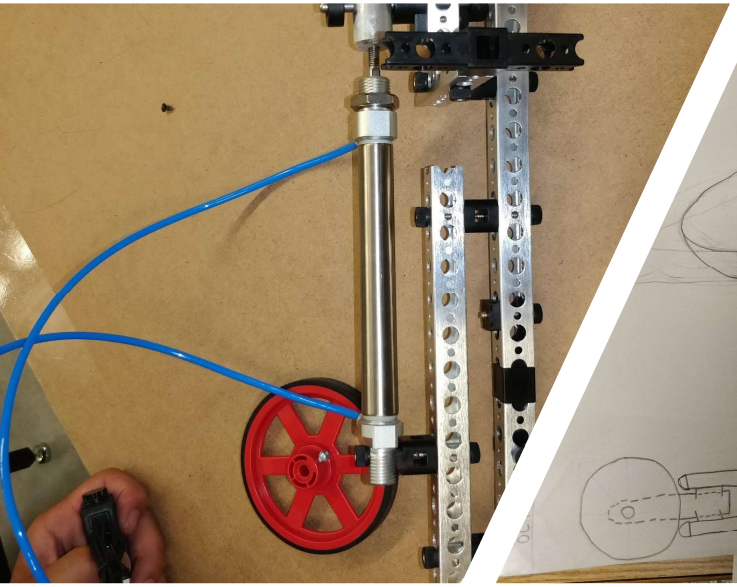
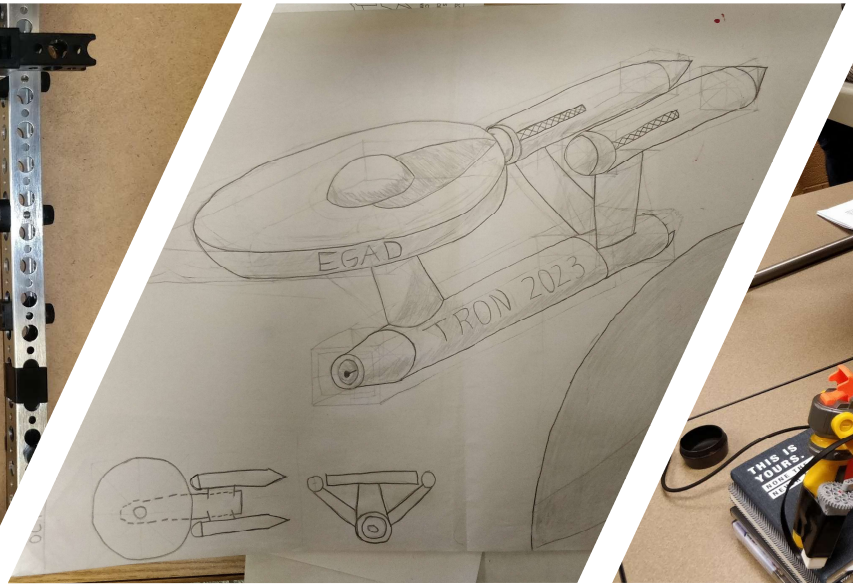


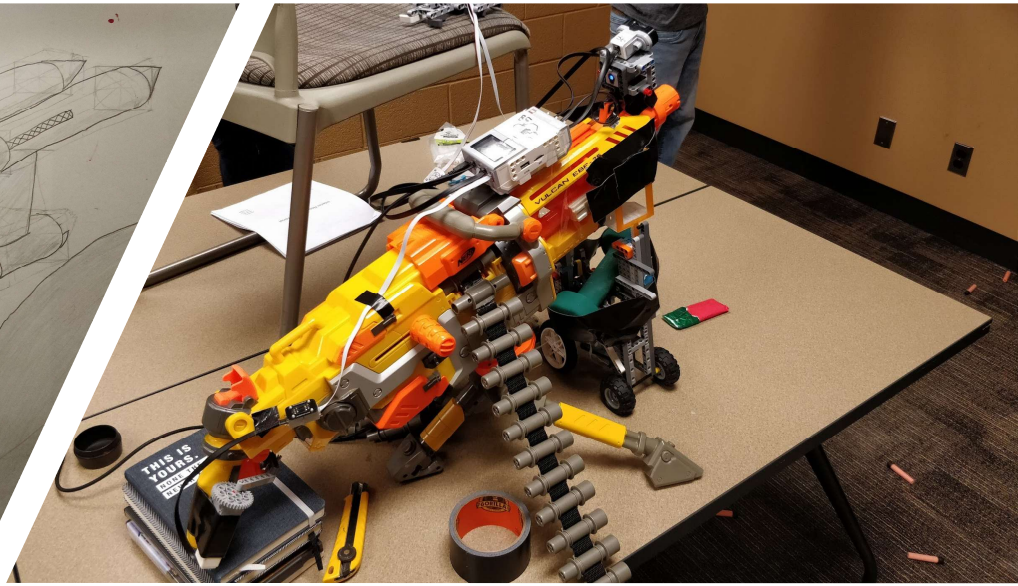


Gursimmer Banwait

Engineer







Hello there!

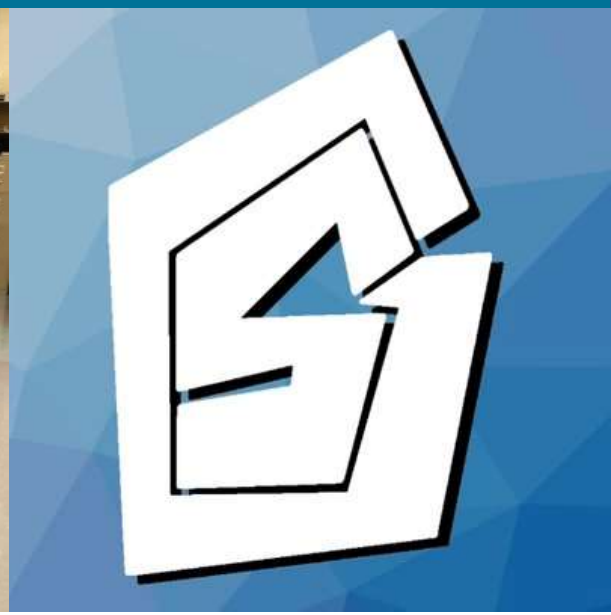
My name is Gursimmer Banwait and I am a Mechatronics Engineering student at the University of Waterloo.

My portfolio outlines a few of the projects that represent my capabilities aswell as the potential I have in the future

WINDSOR
ONTARIO CANADA 2016

Fina
WORLD SWIMMING
CHAMPIONSHIPS (25M)

1 3D PRINTING COMPANY
5 PROTOTYPES
7 WEEKS
15 PRINTERS
400+ PRINTS



G-STORM
3D PRINTING

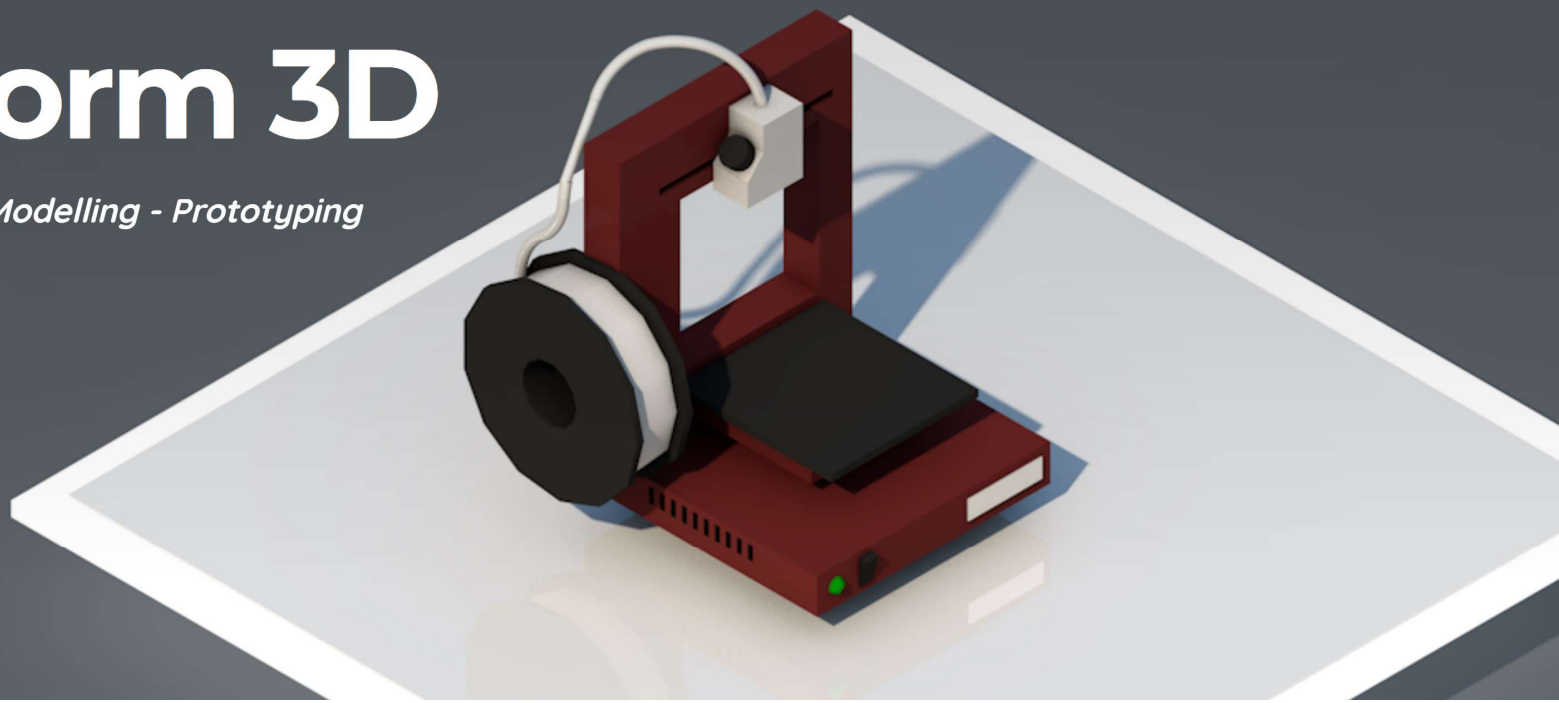
MID 2016 After applying for a grant from the government to start a joint 3D Printing Business (G-Storm 3D Printing)

My partner and I were offered the oppurtunity of a lifetime to design and ultimately create 400+ Adirondack chairs which would be the medal holders for the 2016 FINA World Swimming Championships

G-Storm 3D

3D Printing - 3D Modelling - Prototyping

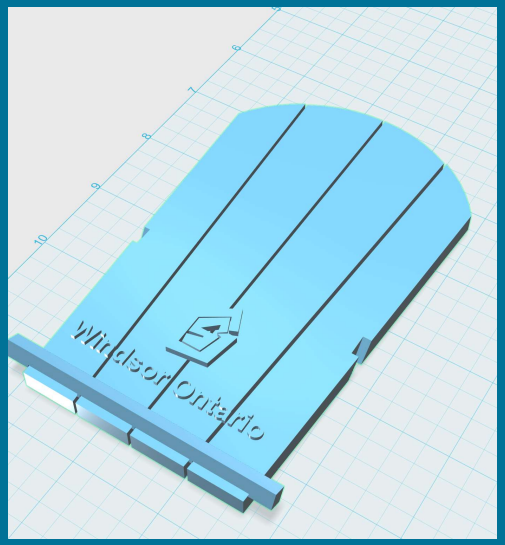
SERVICES

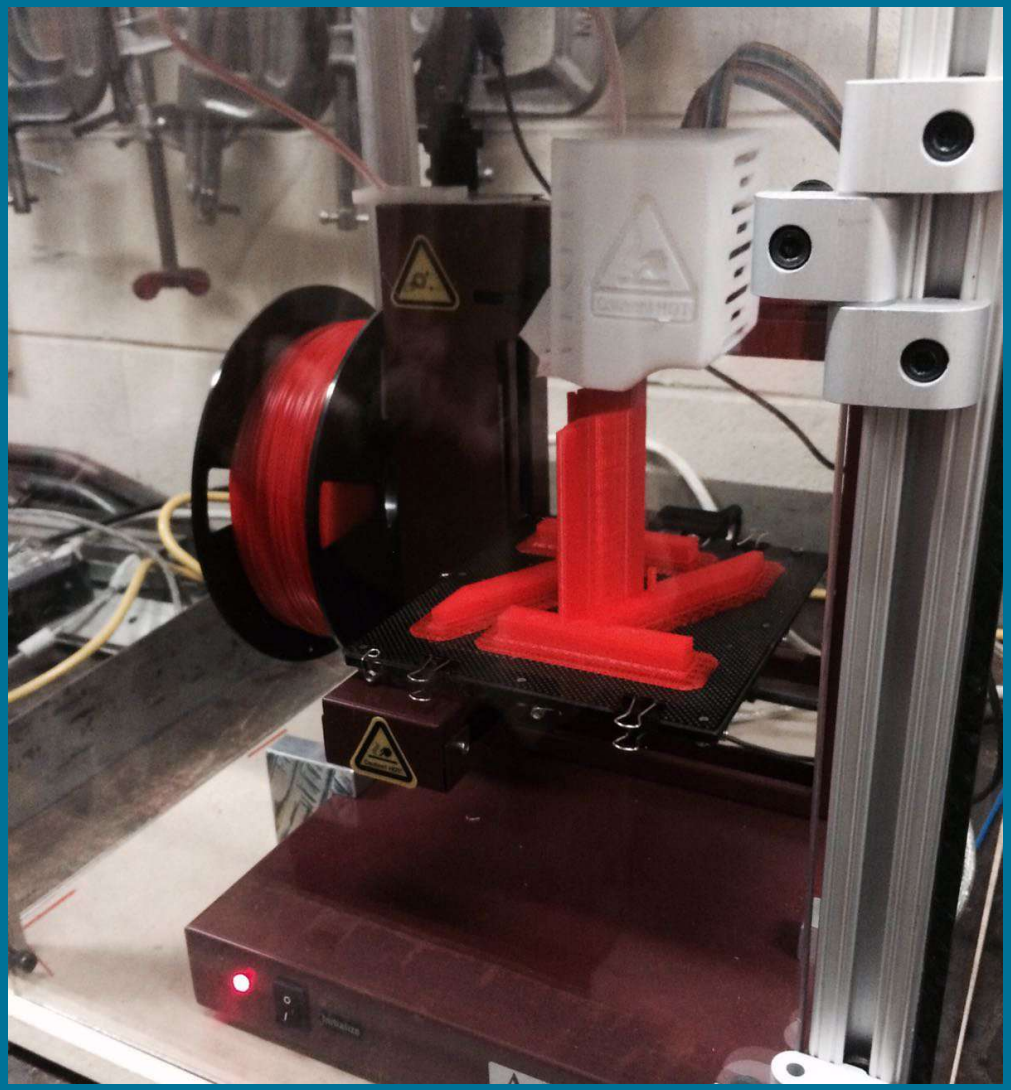


- Designed 5 different prototypes within a week using CAD and SolidWorks Printing out prototypes through a Prusa i3+ and Afinia H479 3D Printer

- After contractor approved of design, started Mass production for the next 6 weeks

- While achieving honour roll in school 400+ Chairs were made Intime for event

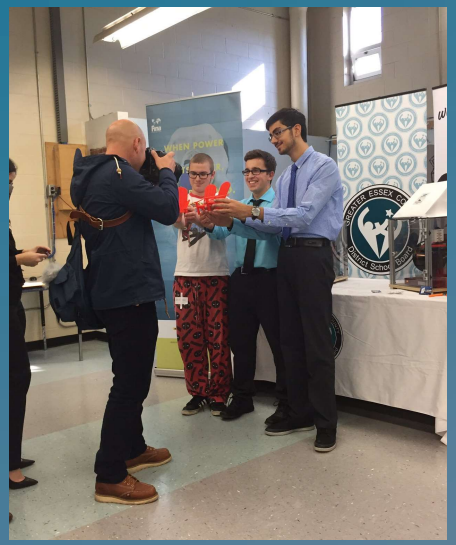




Media became interested in our work and G-Storm 3D Printing went on the news.

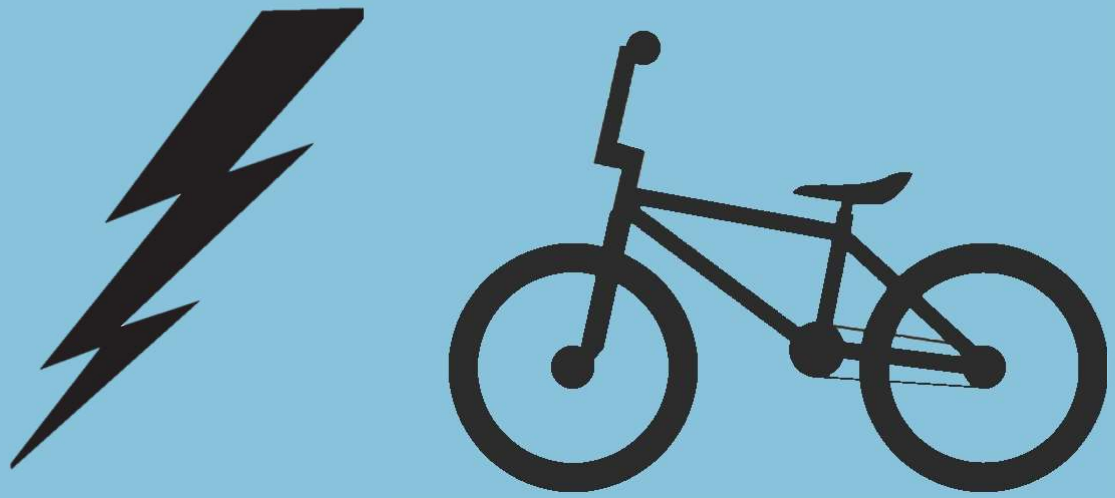
Soon we attracted a lot more business from different clienta l who wanted our help to bring their ideas into a real life product

https://windsorstar.com/news/local-news/local-students-create-3-d-gift-for-fina-swimmers



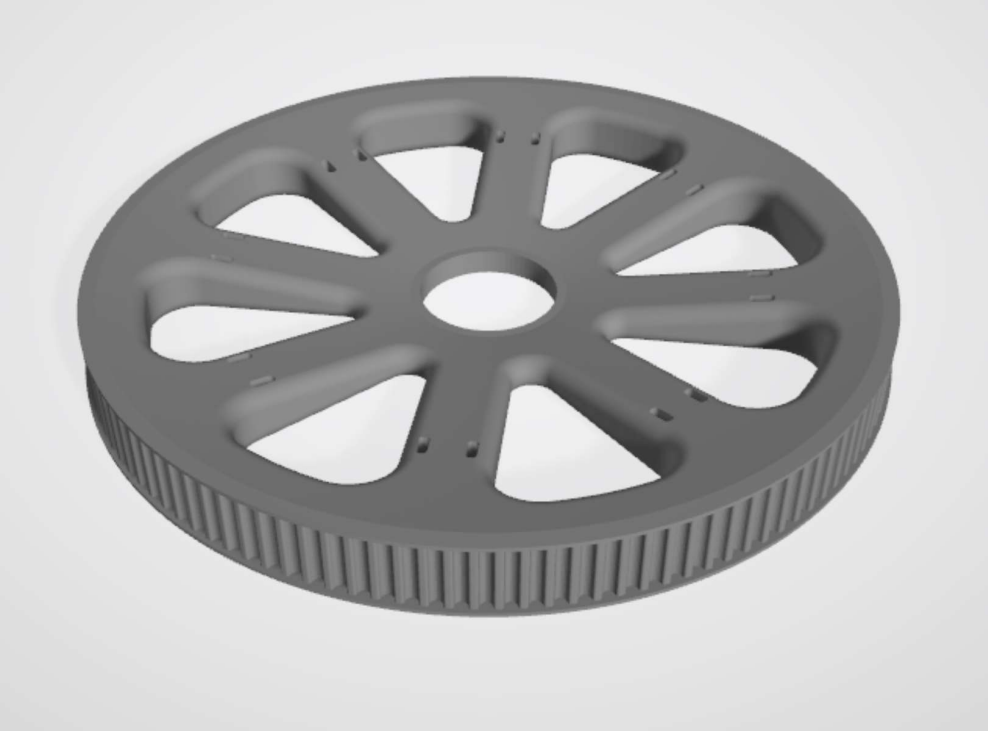
The end product was loved by the champion swimmers as well as anyone who was looking for a great phone stand

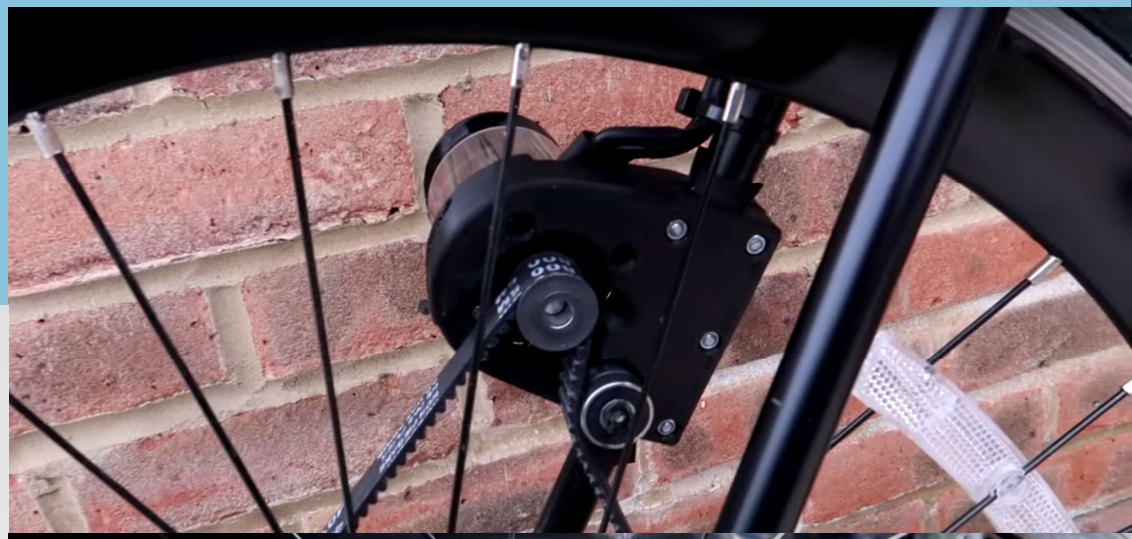
https://www.cbc.ca/sports/olympics/aquatics/truly-canadian-medal-ceremony-gift-world-swim-champs-1.3881924

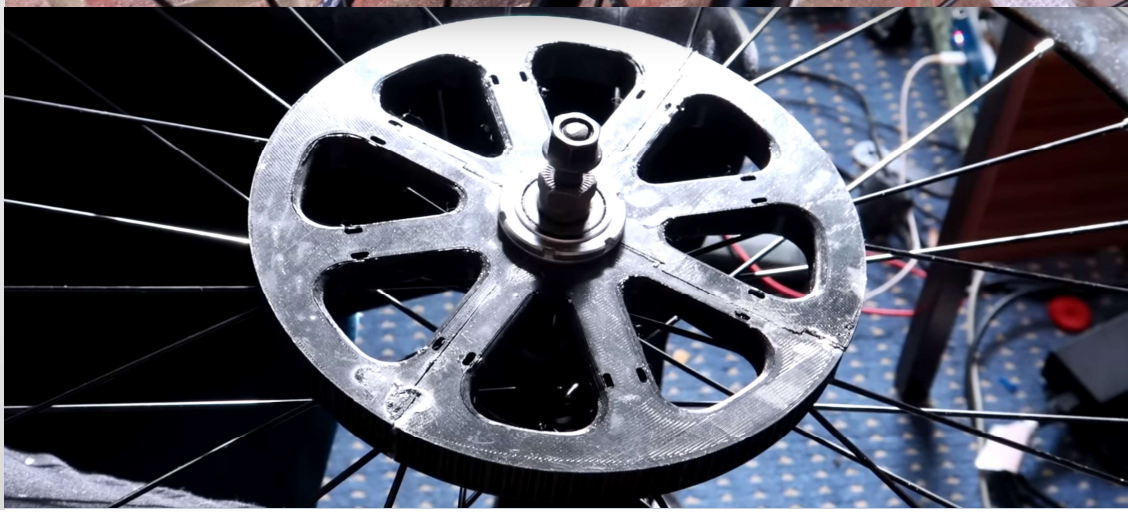


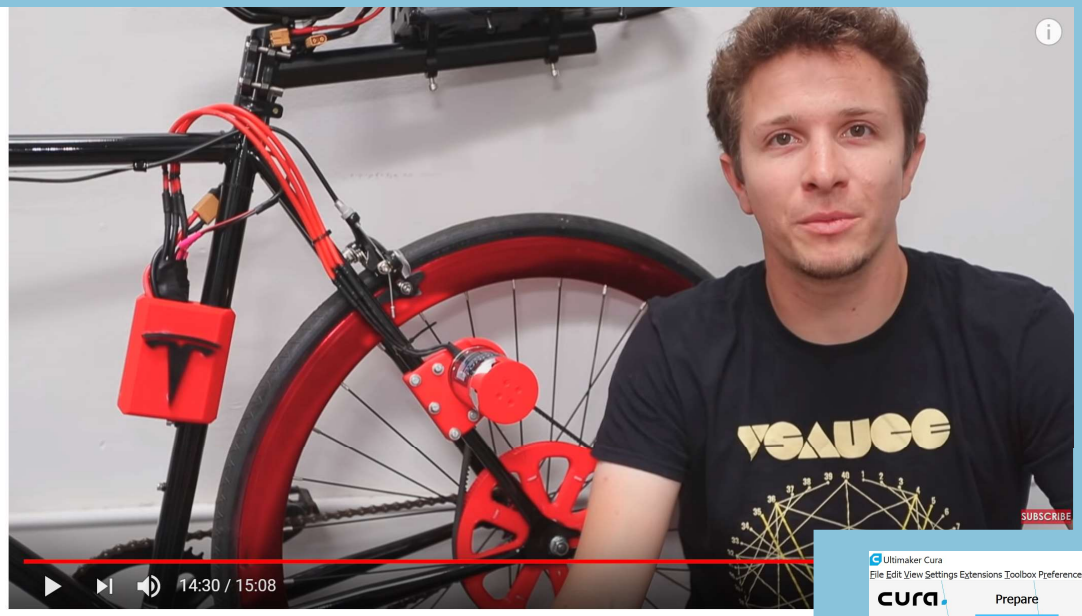
ELECTRIC BIKE CONVERTOR KIT

One of my many on going projects is the building of a convertor kit meant to turn virtually any mountain bike into an electric bike through a universal start up kit



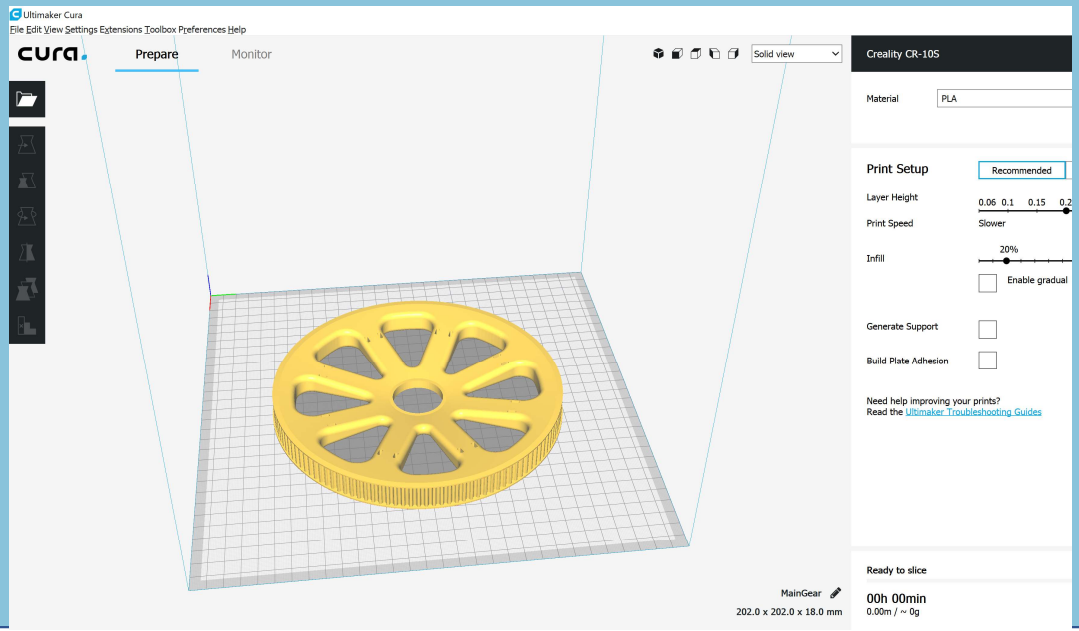




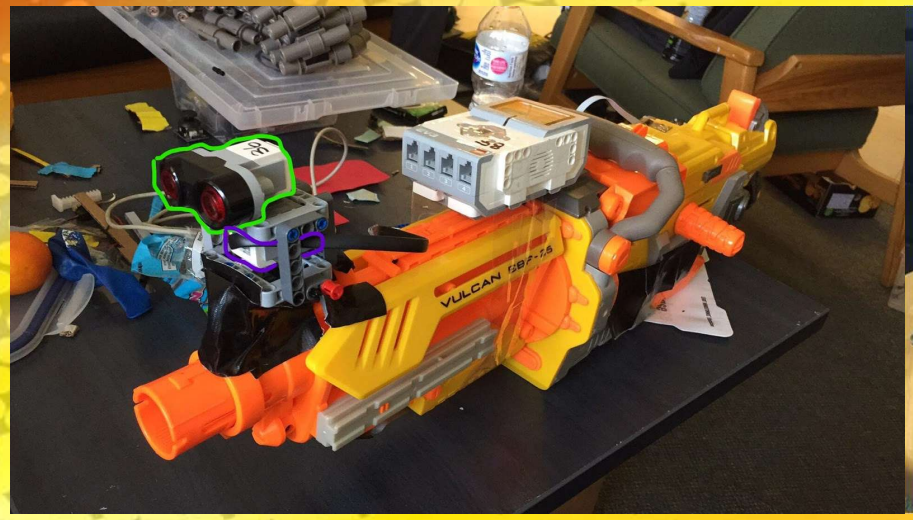


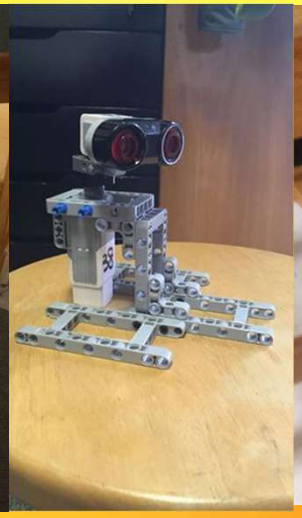
Building a Tesla ELECTRIC BIKE For my WIFE

Inspired from other designs I am attempting to make my own rendition of a E-Bike that could be packaged into a simple convertor kit for anyone to use on their own bikes



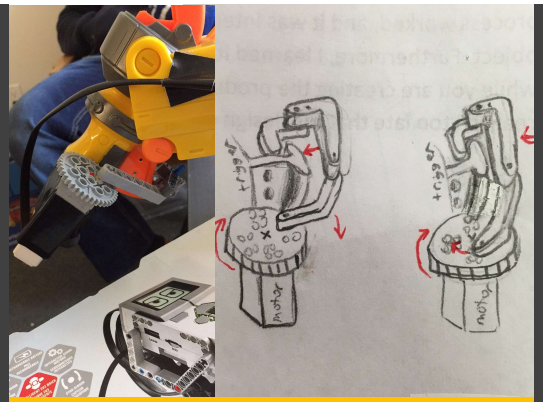
LEGO NERF SENTRY GUN



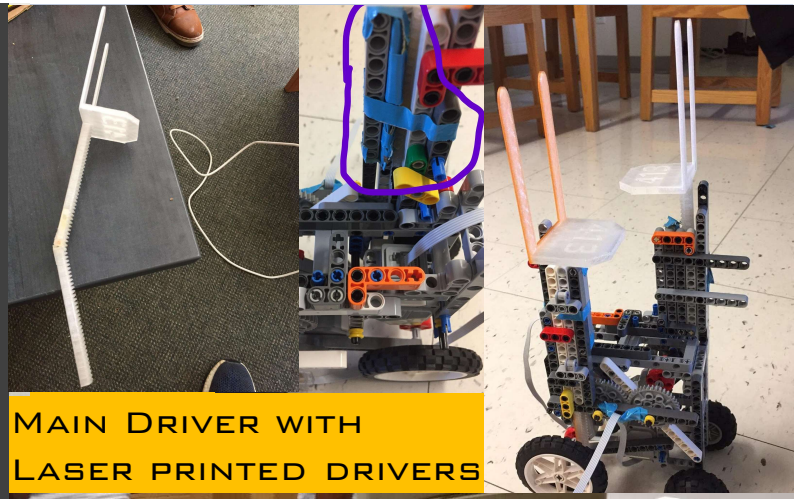


First Year Engineering Final Project

THE MECHATRONICS PROGRAM AT THE UNIVERSITY OF WATERLOO REQUIRES YOU TO BUILD A FUNCTIONAL ROBOT TO ACHIEVE A TASK. WHILE IN FIRST YEAR I LEARNED THE FUNDAMENTALS OF LARGE GROUP PROJECTS WITH DEADLINES, FORMAL REPORTS, ETHICS, AND THE ABILITY TO COLLABORATE WITH OTHERS ON A HEAVILY CONSTRAINED PROJECT

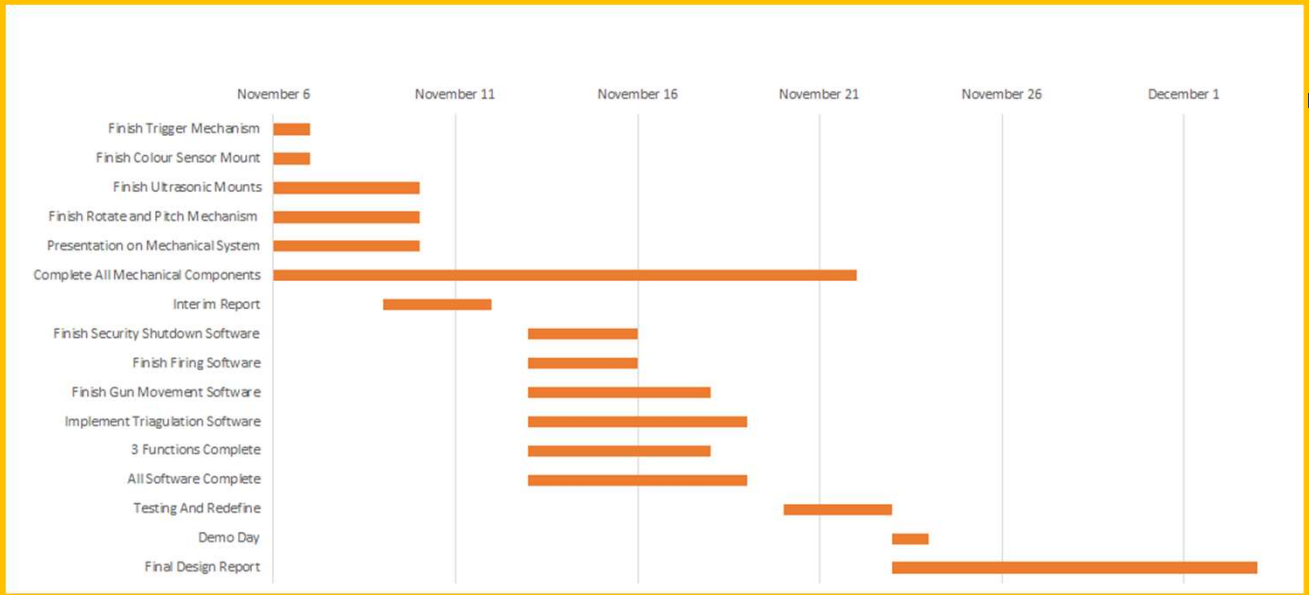


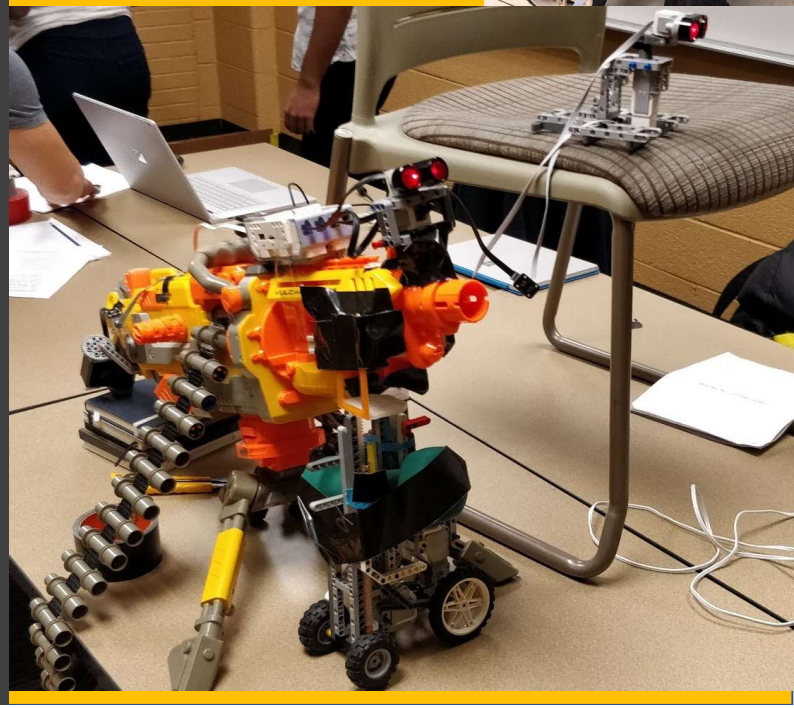
TRIGGER MECHANISM



MAIN DRIVER WITH LASER PRINTED DRIVERS

GANTT Chart for Project Timeline





The sentinel is comprised of the main body; a NERF gun on a rotatable tripod and 4 separate sections:

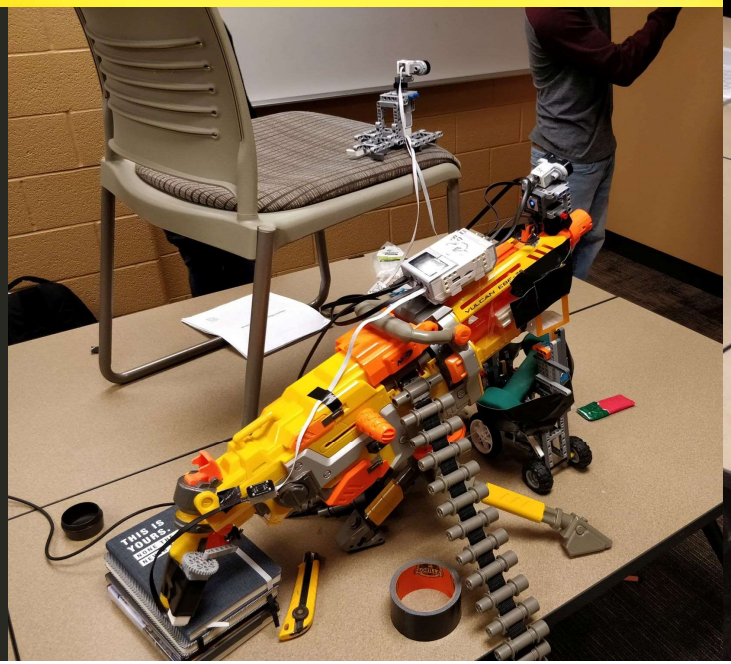
1,2 two Ultrasonic sensors for locating the target

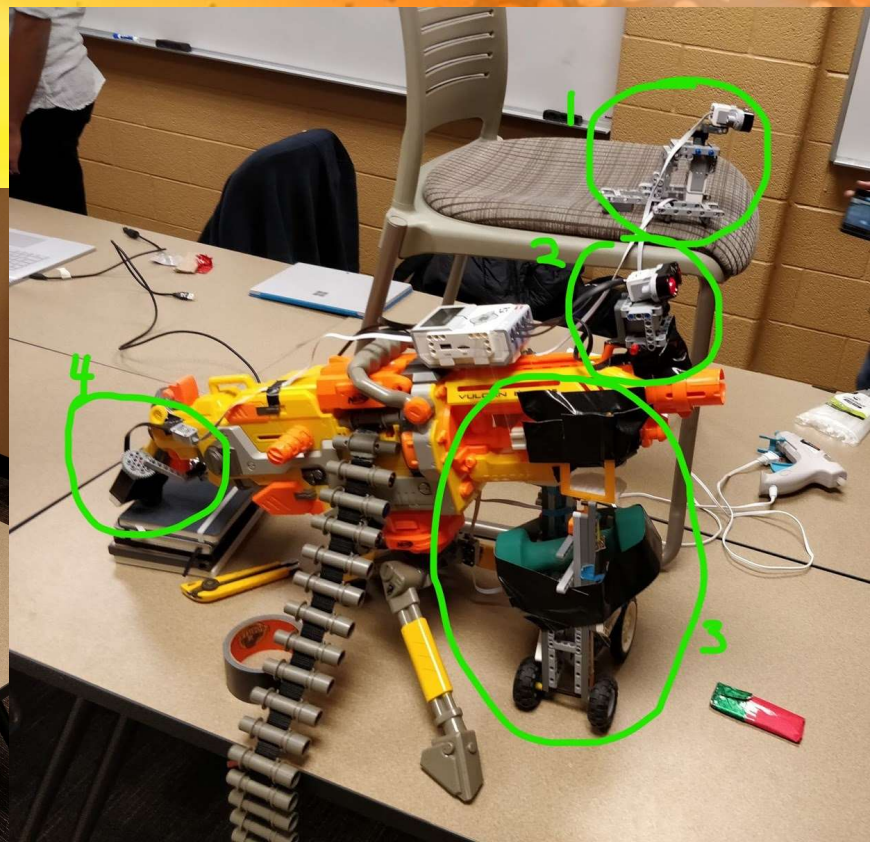
3. a driver to rotate the turret into position

4. a trigger mechanism involving a colour sensor for start up and shut down - with an actuator on the trigger.

Programmed to Work using C++ and RobotC while first developed using Python for proof of concept

```
task main()
{
    SensorType[S1] = sensorEV3_Ultrasonic;
    wait1Msec(50);

    SensorType[S2] = sensorEV3_Ultrasonic;
    wait1Msec(50);

    SensorType[S3] = sensorEV3_Color;
    wait1Msec(50);
    SensorMode[S3] = modeEV3Color_Color;
    wait1Msec(50);



    int vertDisp = 0, horDisp = 0, timesFired = 0;
    while (SensorValue[S3] != (int)(colorGreen))
    {}

while (SensorValue[S3] != (int)(colorRed))
    {
        if(timesFired < 3)
        {
        horDisp = TriangulateHortizontal();
        turnRifle(horDisp);
        vertDisp = verticalTriangulate();
        timesFired = fire(timesFired);
        turnRifle(-horDisp);
        returnVPos(vertDisp);
        returnHPos(horDisp);
        }
    }
}
```





Thank you for your time

Let's get to the future

Sooner,

So we can all dream

bigger.

Contact: g3banwai@uwaterloo.ca | 519-992-6272