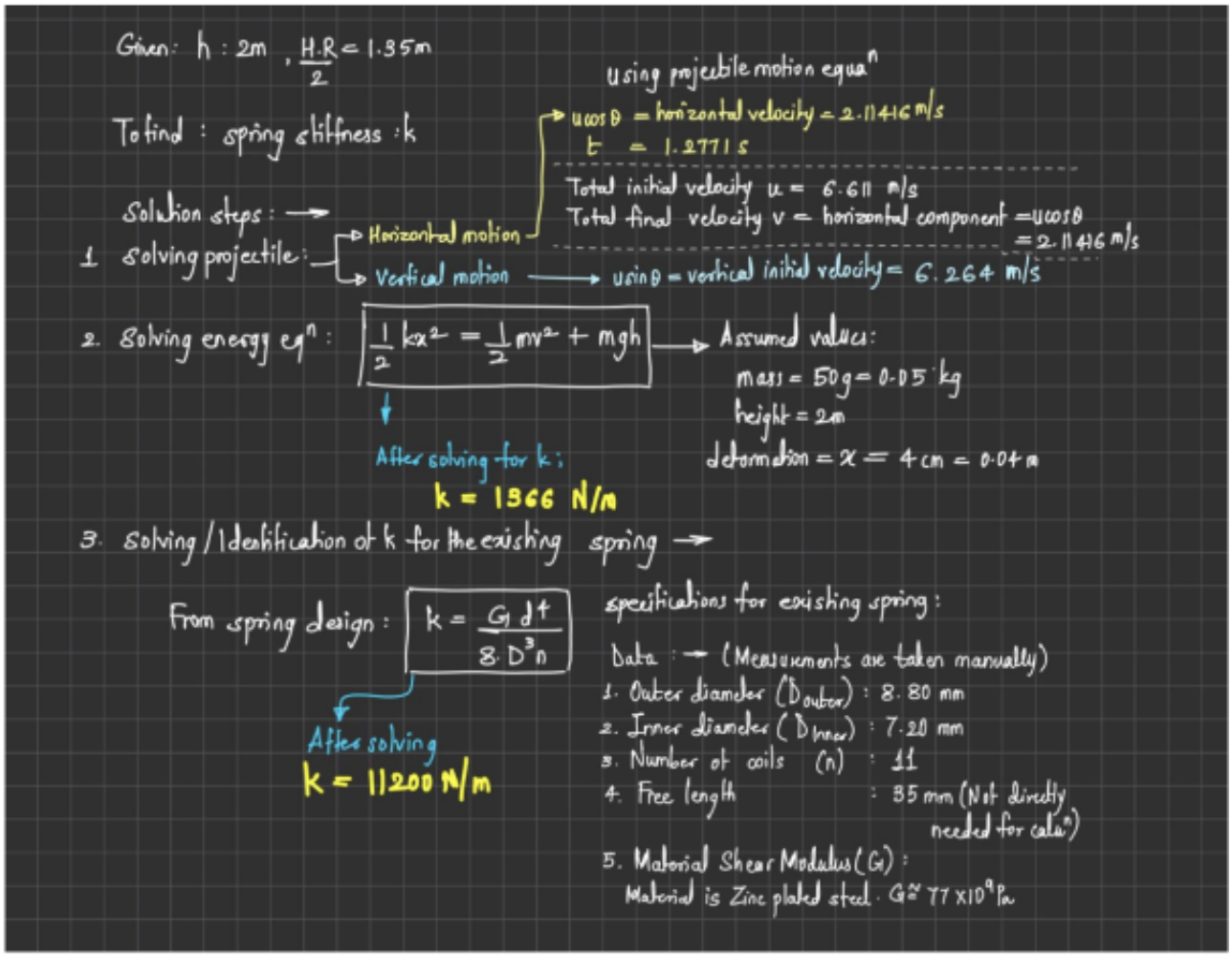
**DASL Wiki**

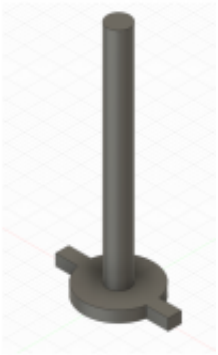
# Week 5: Calculations are a Must!

## Photo of the week:

(Spring constant calculations)

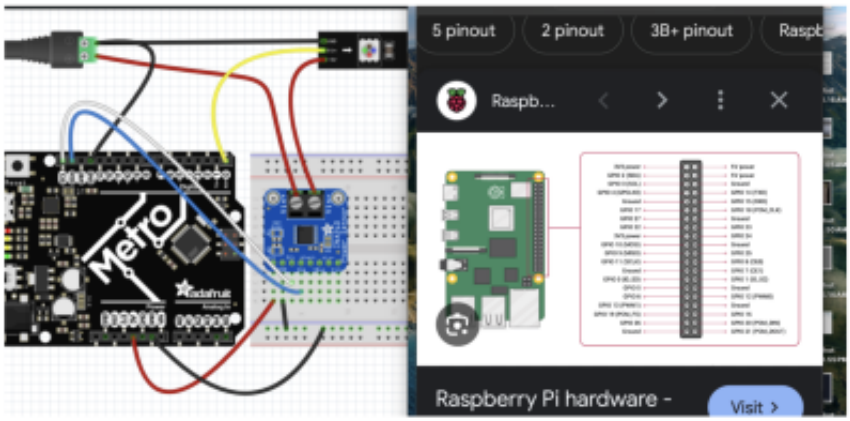



In the last week, I failed to showcase the calculations behind choosing a specific spring. As a result, I had to do more for the value of the spring constant. After getting the proper value of the spring constant, I started designing a small prototype of my projectile launcher. I got it 3D printed & finally, it worked! Now my further job was to get it bigger, that is, to make it bigger in size. I was happy! When you design something, if it fits exactly as you wanted it to fit, nothing like that!



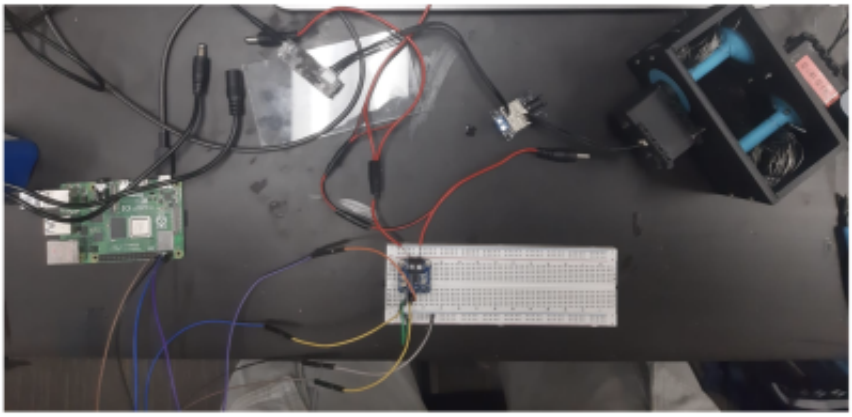
After a successful completion of the small prototype, I realized that theory & practical go hand in hand, but when you want to get your theoretical calculations to work in practice, you need to get into a little bit of design theory and material science! In choosing the spring, I had to know about a little bit of SPRING DESIGN for calculating the spring constant of the spring, which I actually have.

## End Effector




Now let's get a little bit of updates regarding my end effector. The final goal is to get tensions from the cables. To achieve

that, I dived into motor theory. I was able to understand the connection between current consumed by the motor, torque generated by the motor & tensions in the cables. Thus, to get the current values there was a need to integrate the sensors. INA260 power sensors I am using. It is of Adafruit company. After going through the pin diagram of Raspberry Pi's sensor & connected the sensors to Raspberry Pi, the task was connecting sensors to the motor. I properly understood the electrical circuit & joined it correctly. I made my hardware connections proper. Now there was a need of code which will get the data out of the sensor. I was able to complete the software part much easily. I got the appropriate current values from at least one motor!



It was indeed a fruitful week. What I learned in this process was troubleshooting of issues on your own is the most important aspect of it! Team members are always there for you to help, but if you try learning or troubleshooting any issue on your own, you still can achieve it!

## STRIP:

Visiting Strip again & again helps me to unwind! Me & my friend again went to the same hotel but tried different things! It was indeed fun.

One thing to mention about the culture that people in hotels/restaurants who serve food or take orders treat each & every customer very well. I eat only veg, so I asked about some veg options. The lady who was taking our order happily explained & suggested what we should order. After our food came, she was taking care of us by asking "all good?" It was such a sweet gesture of her!

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