

A LITTLE PUSH^{!!!}

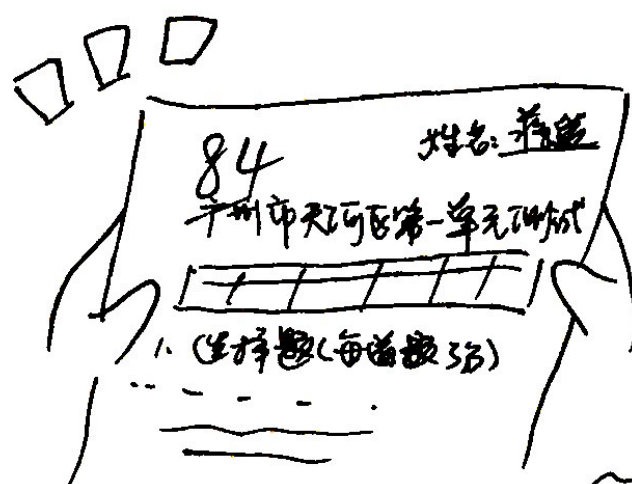
a young girl's path in VEX Robotics Competition

An entry for

Girl⚡**Powered**

In Her Words Storybook Challenge

I was cheered up by my B+ math score.



Yes! I
calculated well.
♡

It was neither too low for me to be laughed at, nor too good for my classmates to isolate me. I looked at Xinqin, who was called "monster" for getting perfect in math, and I felt glad:

MONSTER

NERD

NERD

STRANGE

Abnormal

Hahaha

Don't play
with her!

Girls are usually
bad in math and
science! You are not
a girl, at least we
do not admit that.

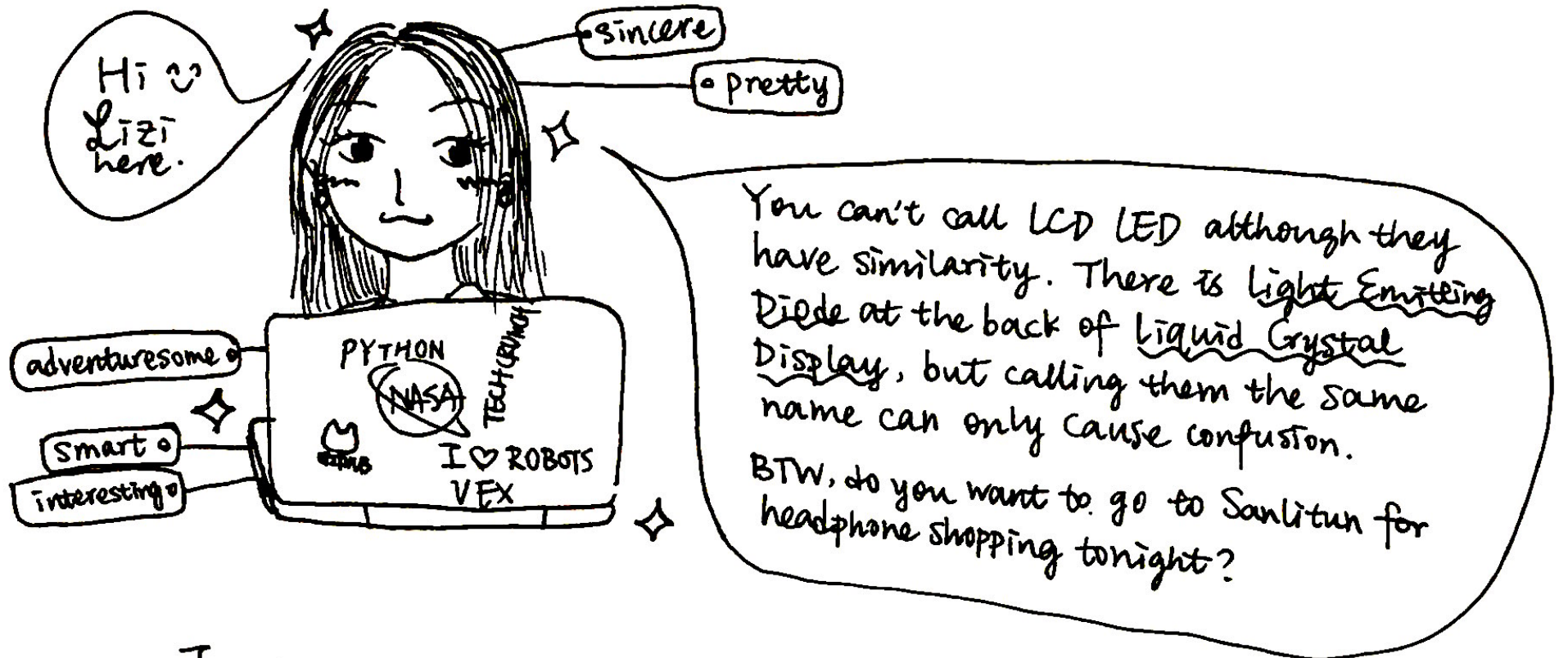
I could've been in Xinqin's situation
if I didn't intentionally change my
correct answers to the wrong ones.

STEM ♀

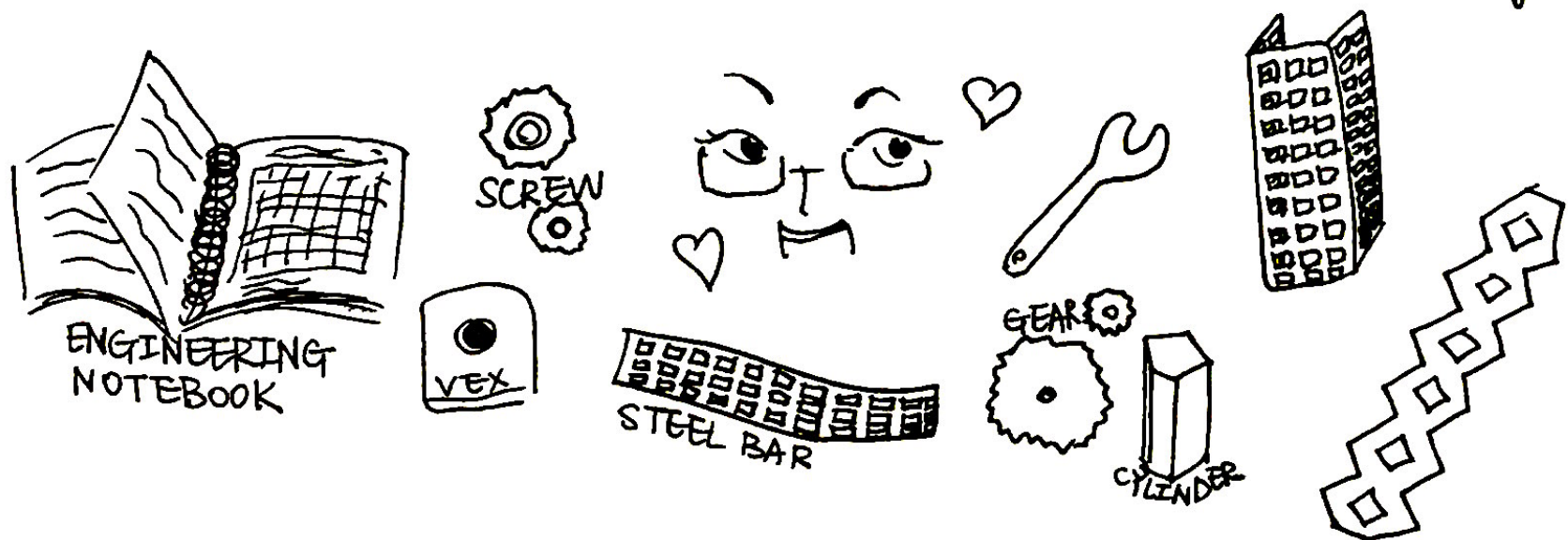
unfeminine

From Xinqin, I learnt that being average in STEM is a proof
of one's femininity—at least in my primary school in Guangzhou.

This recognition was changed, however, when I went to a VEX EDR summer camp in Beijing. I became a good friend of Lizi and learnt that being good at STEM is COOL even for girls.

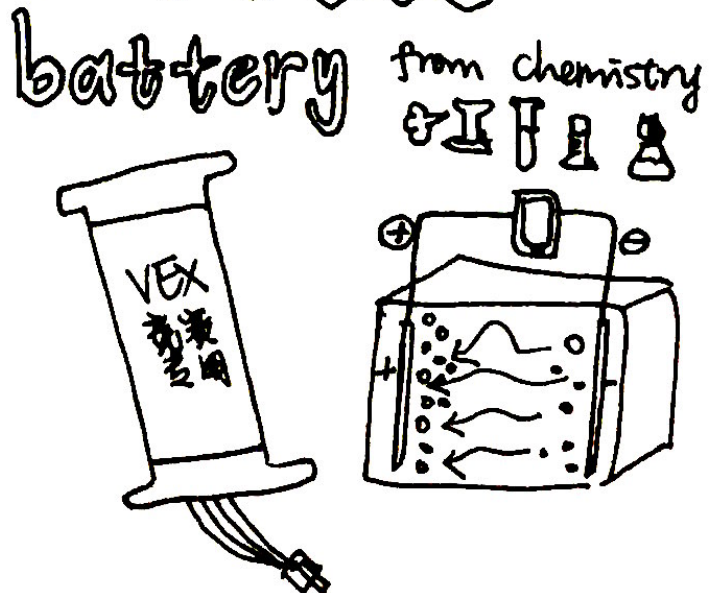
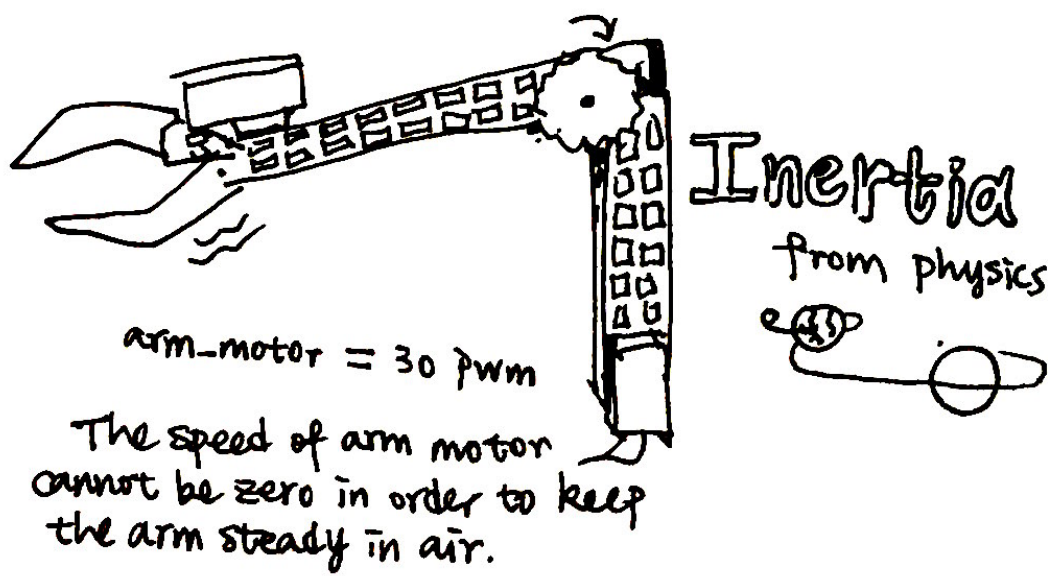


In the camp, I quickly fell in love with robotics and took immense pleasure in designing, constructing and programming robots.

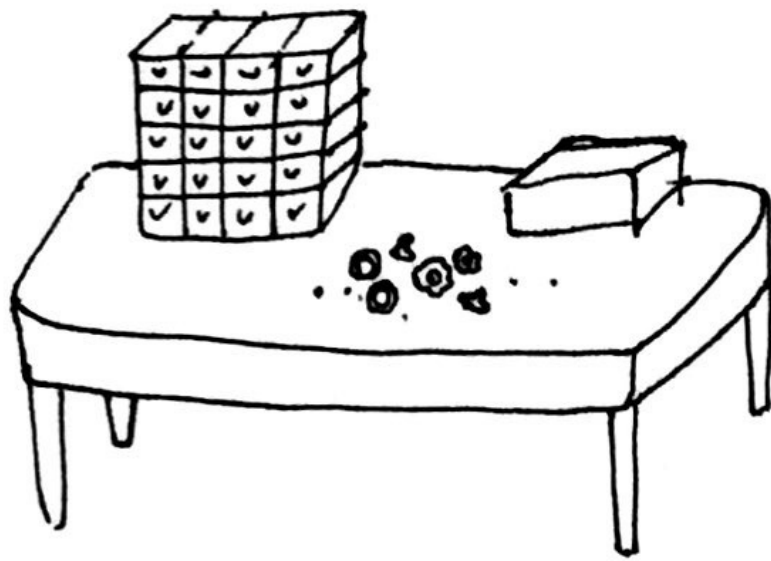


I really enjoy robotics because

- 1 I get to put my Knowledge into Practice.



2 I take pride in creation ☆ ☆



Anton!
Anton!
Anton!

Even check
our our
robot! I
named it
Anton ♡



Cool...
Now let's
start
testing
the
program



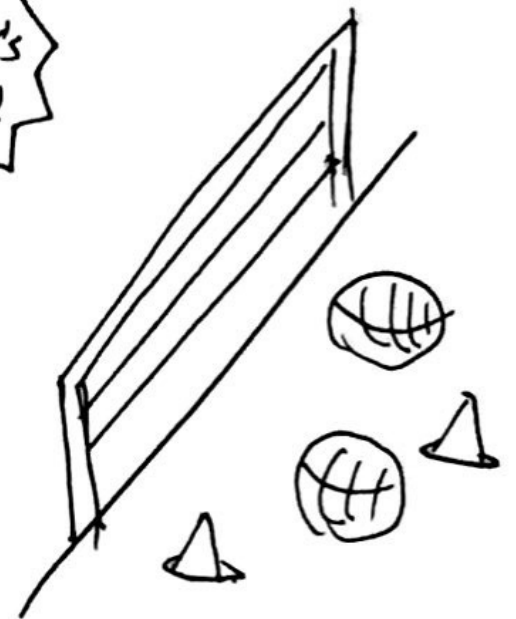
3 I had fun with the competition.



I'm so proud of you,
Anton....



Yeah go get this!
DESTROY OUR ENEMY'S
FEEBLE EXISTENCE!!

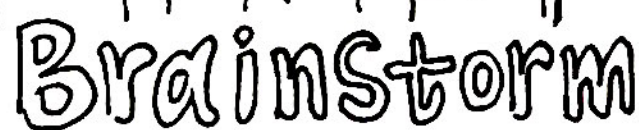


Most importantly: I met life-long friends who share similar passions for STEM.



[illegible]

[Handwritten scribbles]



Coding



0000
00010011001101000
00010011001101000

is happy...

Here's how this sensor works...

I think you did a good job.

BEST PROGRAMMER

PROJECT MANAGER

MECHANICAL ENGINEER

PR Director

Anyone knows how to raise money on Valentine?

I'm ready

Anyone knows how to raise money on Valentine?

PROJECT
MANAGER

MECHANICAL
ENGINEER

PR
Director

Have robots send flowers!
4 dollars for 1 person

TREA-
SURER

PROGR-
AMMER

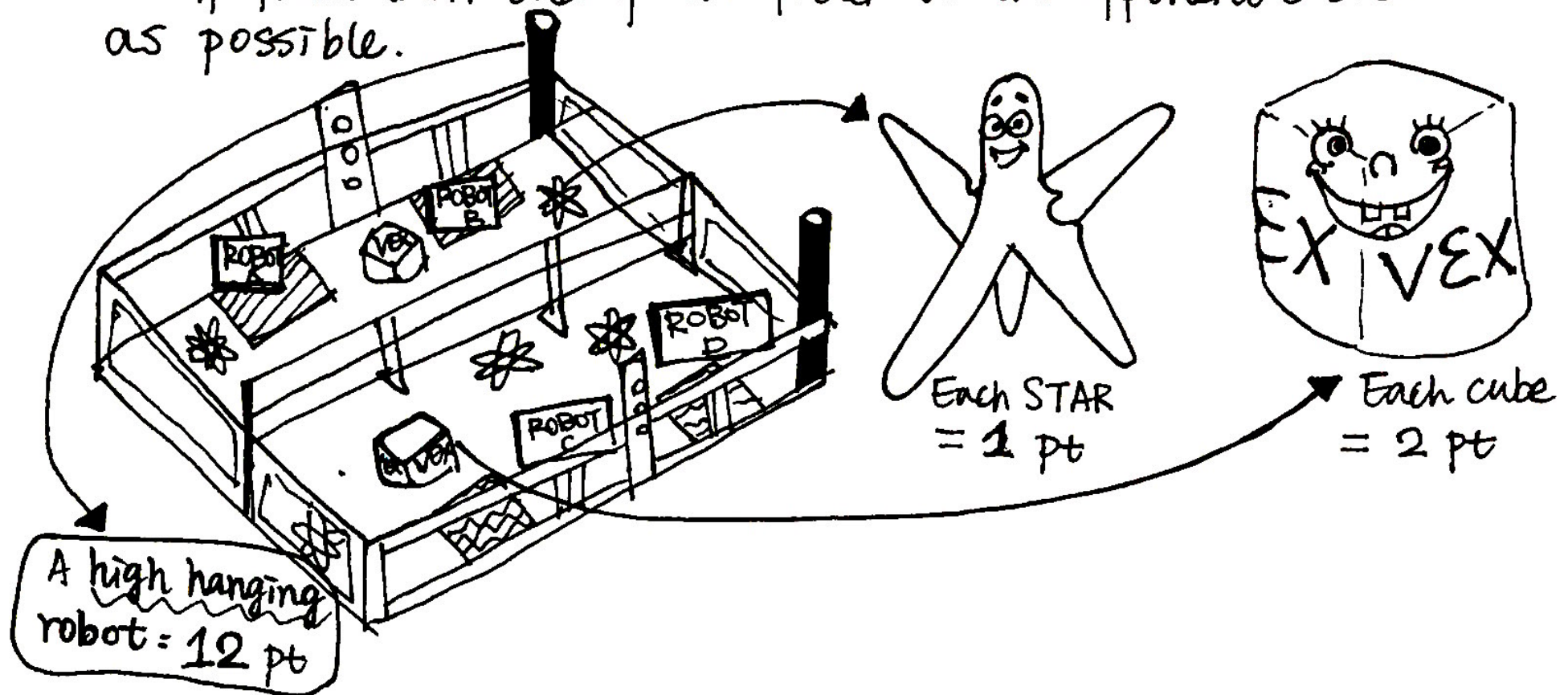
MECHANICAL
ENGINEER

DESIGNER

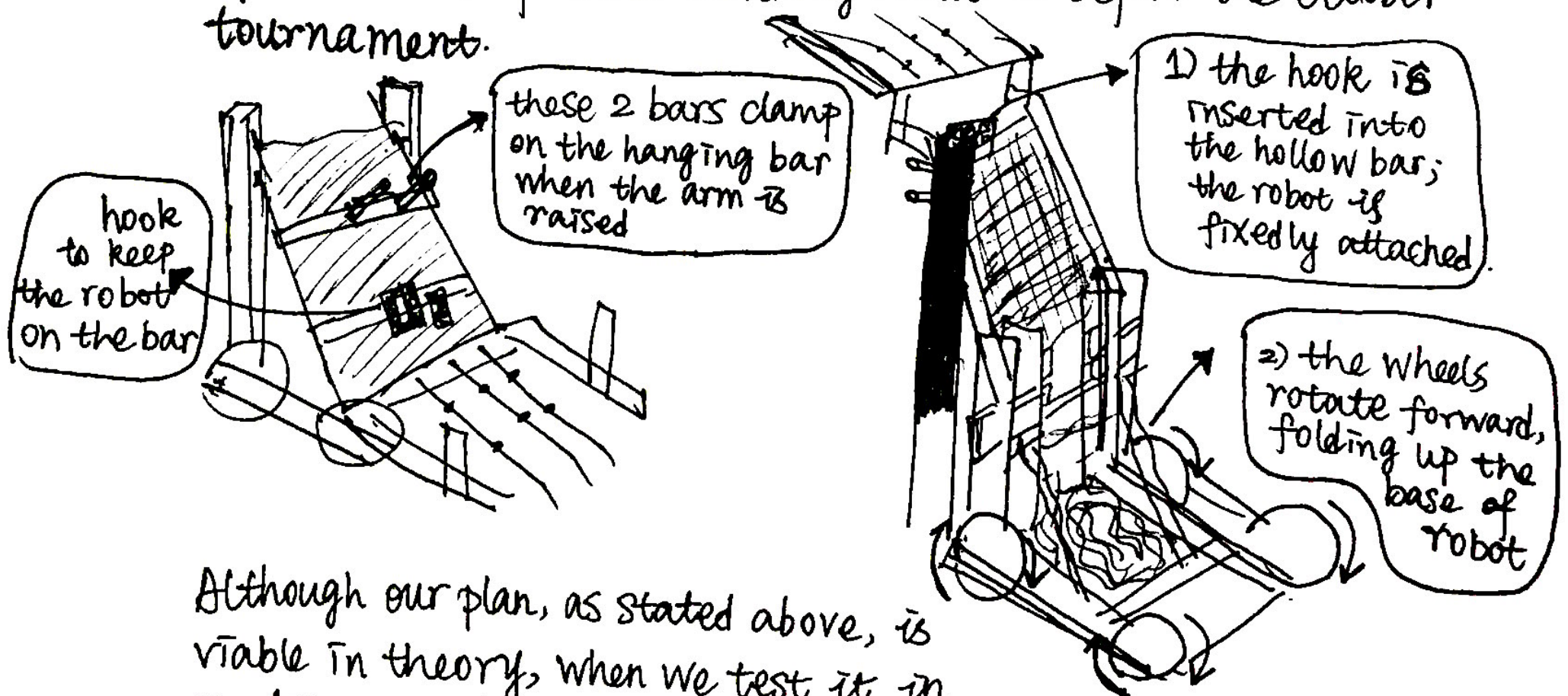
PROGRAMMER/
LEADER

What a great team!

This year, the theme of VEX Robotics Competition is "Starstruck". In a tournament, two teams stay on the opposite side of the competition field. And each team controls their robot, trying to throw/push as much stuff from their side of the field to the opponent's side as possible.

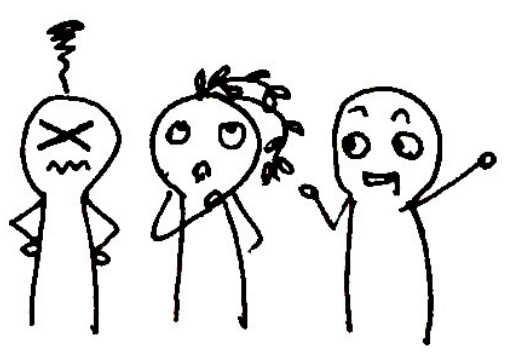


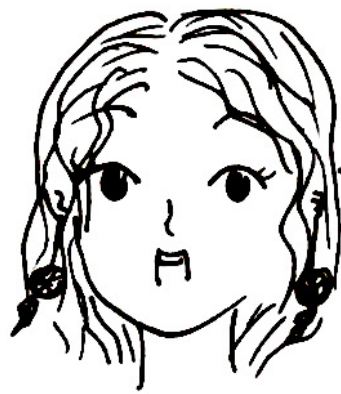
If we hang our robot on the bar and our robot is not touching the field perimeter, it is counted as a high-hanging robot and adds (12) points to our team. Being able to high hang stably is a key to success, so we spent a lot of time thinking about it before the October tournament.



Although our plan, as stated above, is viable in theory, when we test it in reality, the high hanging Success rate is low: the base of our robot always get stuck on its way upwards.

mysterious BUG



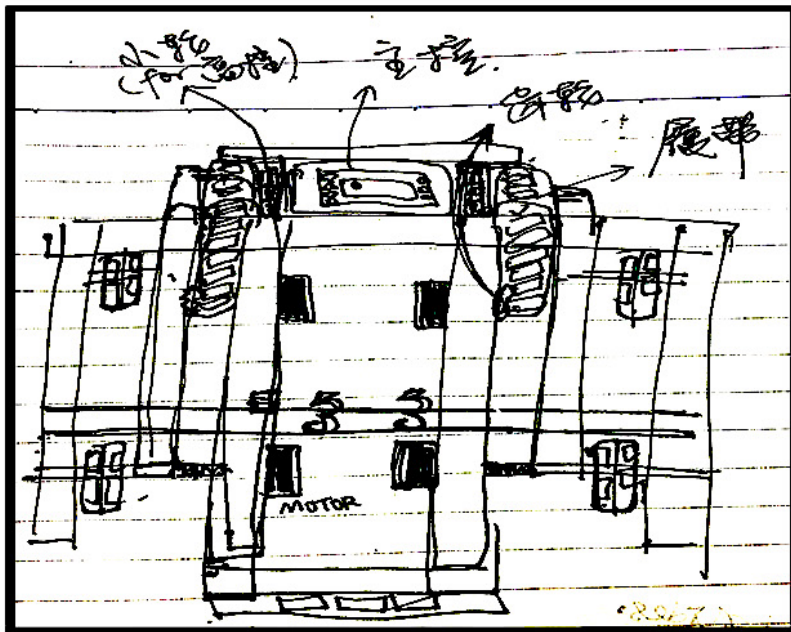
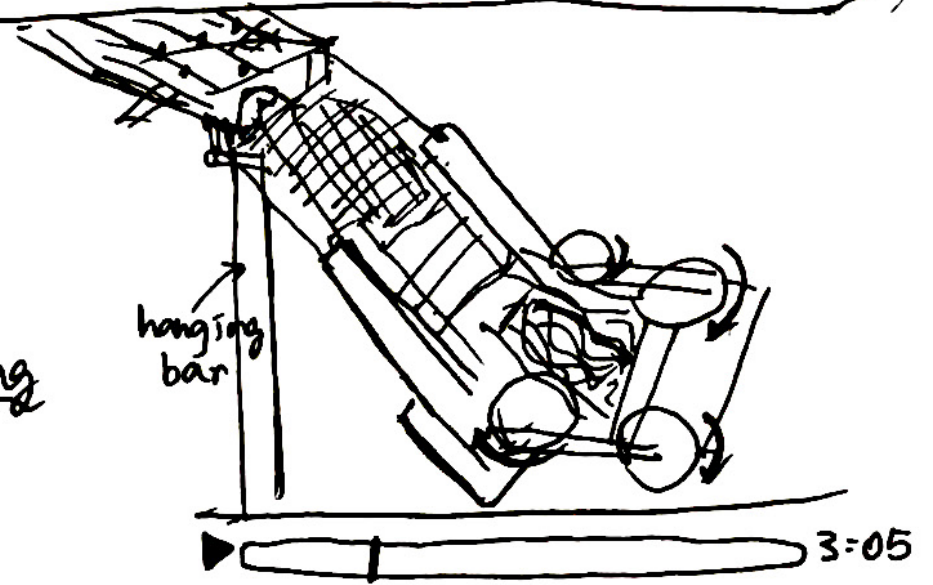


41721A
programmer:
Ruqing

Don't worry Lavender! Maybe we can take a slow-motion video of how our robot high hangs, and then we can study how it really works instead of making more plans on paper.

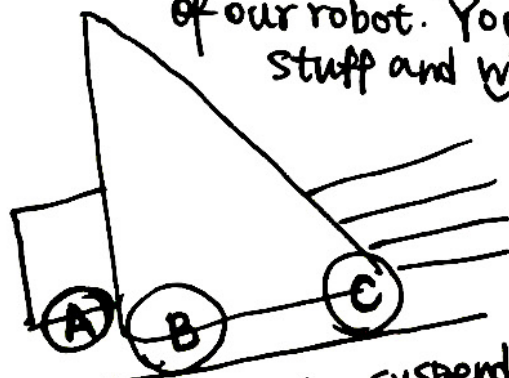
We took Ruqing's advice, and finally found the problem:

When the robot's base is almost folded, the four wheels are rotating in the air! In other words, our robot is stuck because no forces is pushing it upwards.

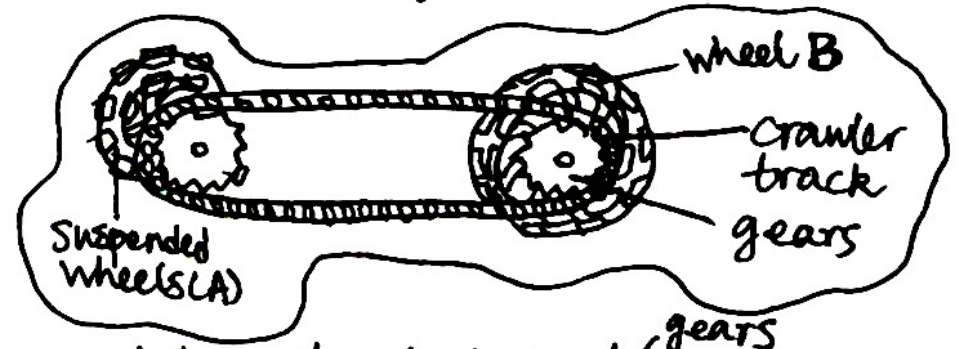


So how can we give our robot a lift while it is stuck there? One mechanical engineer suggested changing the structure completely, but I hoped to find a simpler solution. Maybe by adding something ... like A PAIR OF REAR WHEELS! I drew a diagram.

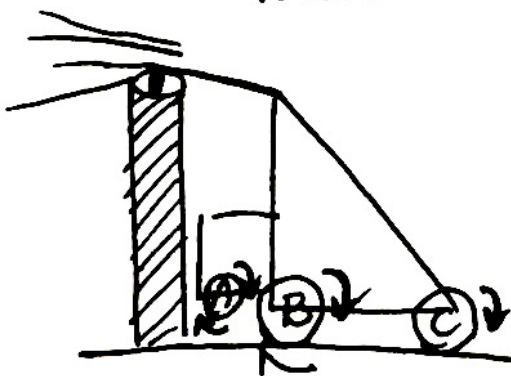
This is a VERY simplified diagram of our robot. You can see stuff and wheels.



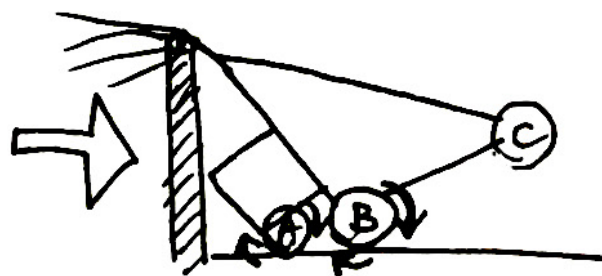
Normally, the suspended rear wheels do not touch the floor.



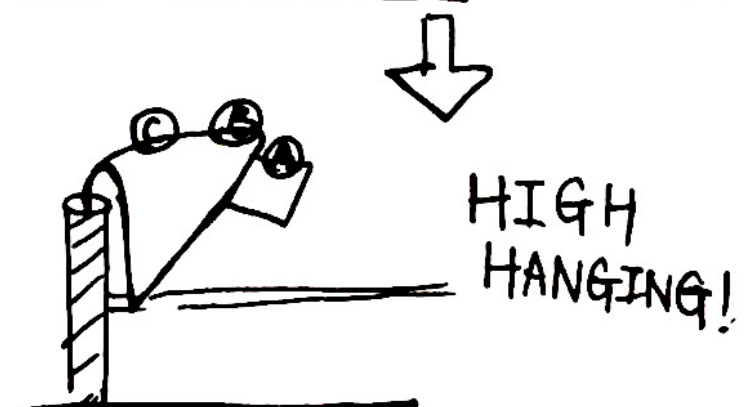
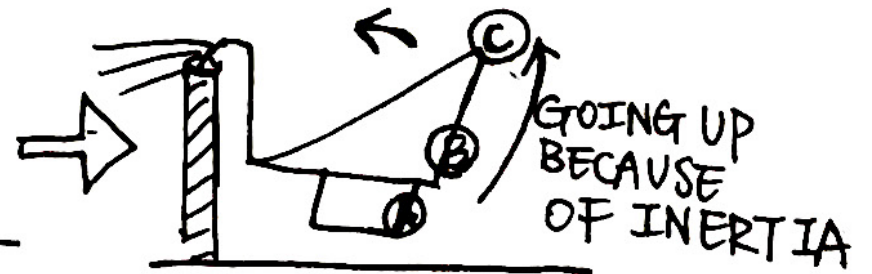
Wheel A's and wheel B's are connected by a crawler track, so that we don't need to add more motors because the added wheel A shares power source with wheel B.



THREE WHEELS ARE ROTATING...



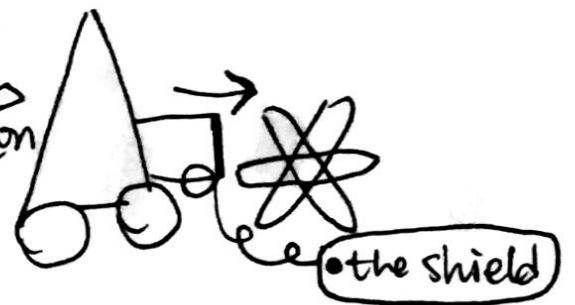
THE REAR WHEELS TOUCH THE FLOOR AND GIVE THE BASE A LITTLE PUSH...



How it works

Also, we used the extra space taken by the rear wheeling by adding a back shield. The shield can be used to push stars onto the opponent's side by when going backwards.

⇒ High hanging eventually became our secret weapon in the 2016 October Hong Kong International School Tournament.



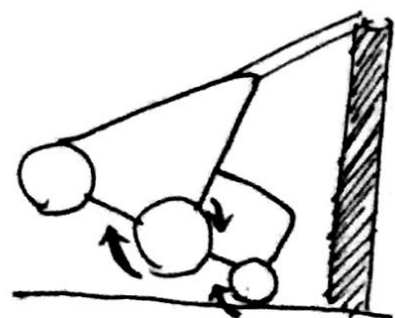
The night after the tournament ended, our team went to the Victoria Peak to get a view of Victoria Harbour. Looking at the beautiful light in nocturnal wind, we felt like....



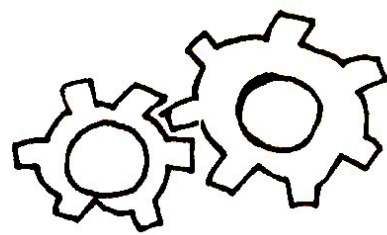
- I felt nothing can stop me from pursuing my passion in programming and robotics for being a girl ♀, being young ♂, or being Chinese [CN].
- I felt confident, free and genuinely happy. After years of struggles with the "STEM = unfeminine" stereotype, I can finally say: "I love STEM. And I want to become a robot engineer or a science researcher in the future"

• My dear girl, if you are reading this right now, please do not hesitate to try the things you've been always wanted to do, no matter what others might think of you. After all, to realize our immense possibilities, sometimes all we need is

A little push in the right place.



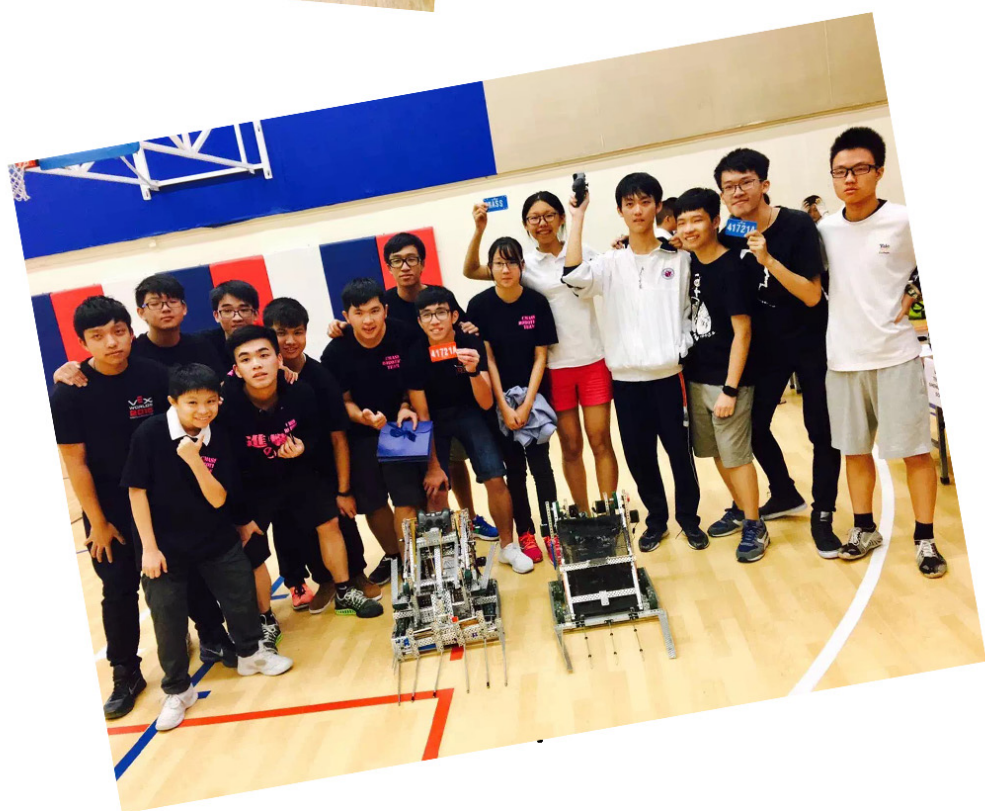
CREDITS



Entrant :
Lavender Jiang



Photographers:
China Robot C
Eddie Lin
Lavender Jiang
Keith Huang



Registered Team:
41721A, HS of HBIC



It's high hanging!

We love
our robot:
Anton II

