

Engineering Notebook

184 F

Team Number

Short Circuit

Team Name

Timberline Middle School

School

10/27/24

Start Date

End Date

1 of
Book #

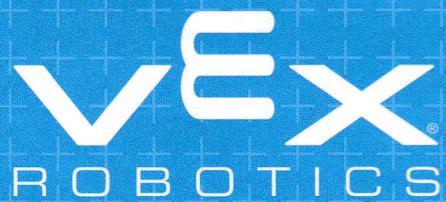


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- 60 tooth gear (6)
- 12" rod (1)
- Thin rubber bands (25)
- Thick rubber bands (20)
- Track (100 m)
- 8 shaft (8)
- Friction wheels (6)
- Wheel roofs (6)
- Green rods (6)
- LxZ0 (4)
- 250 mm wheels (5)

Project

Project Flyby Needed

Name

Eshaan, Roshan, Elise, Ryan

Date

parts list #1
11/25/2024

vEX IQ

PROPRIETARY INFORMATION

2

Eshaan: I coded the flywheel, but it wasn't fast enough. I learned how to fix the direction of the axels and the reason why they vibrate so much.

Reyansh: The flywheel wasn't working so I tried to help fix it.

Roshan: I finished the flywheel and coded a little bit.

Elise: Today I learned to add the motors and code the brain to move the motors. I was also learning how to add the vexcode on my laptop and transfer it to the brain.

Project

Reflection #1

Name

Eshaan, Reyansh, Elise,
Roshan

Date

11/25/2024

vEX IQ

PROPRIETARY INFORMATION

Problem: Flywheel is getting pushed down because of its angles causing friction and slowing it down.

Solutions:

- Increase the amount of blue spacers underneath the wheel to increase height and "lever action"
- Taking out the wheel on the bottom of the top wheel to decrease height. Ben Lippert used this technique in his late Flyby-
- Add a roof like structure to the top of the wheels to hold them in place and reduce friction

Project Flywheel friction problem
problems and solutions Name Eshawn

Date 12/12/24

vEX IQ

PROPRIETARY INFORMATION

4

Parts Needed

- 40 tooth sprockets (4)
- 2x10 (8)
- 8 shaft (8)
- Shaft connector (15)

Eshaan: Today I reviewed Ben Lipper Flyby videos, worked on the supporting beams on the drivetrain, and learned that we need to make multiple minor changes to improve the torque and speed of the flywheel. One setback we had was not having any 40 tooth sprockets.

Lexansh: I looked at photos for the Flyby robot and worked on the drivetrain. We didn't have 40-tooth sprocket so we didn't build the intake.

Roshan: I am going to Mr. Steele's room to get 40 tooth gear. I am also changing the flywheel by removing the wheel.

Project

Reflection #2 Name Eshaan, Lexansh, Roshan

Date

12/2/24

vEx IQ

PROPRIETARY INFORMATION

Eshaan: I built more of the drivetrain frame, made 2 of the 3 intakes, and made the intake support frame. On Friday, I will go with Roshan to Mr. Steele's flex and get 1 more 40 tooth sprocket.

Roshan: I built more drivetrain and added gears chains, and motors.

Project Reflection #3 Name Eshaan, Roshan

Date 12/3/24

6

Autonomous Swish Table

trial	Game	Switches Shared	
1	Successful	4/4 100%	
2	Successful	4/4 100 %	
3	Successful	4/4 100 %	
4	Successful	4/4 100 %	
5	Successful	4/4 100 %	
6	Successful	4/4 100 %	
7	Successful	4/4 100 %	
8	Successful	4/4 100 %	
9	Successful	4/4 100 %	
10	Successful	4/4 100 %	

Conclusion: The bot is AMAZING and INSPIRING because it has 100% accuracy.

Project Autonomous Swish table Name Eshaan

Date 12/5

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PROPRIETARY INFORMATION

12/5 Today I worked on code and learned how to make the bot grab both balls and shoot them into the goals.

Eshaan: Today I coded the Swish bot to shoot the top goal once, and the bottom goal infinite times. We have 6 days until our league on Dec. 11.

Project

Reflection #4

Name Eshaan, Elise

Date

12/5

vEX IQ

PROPRIETARY INFORMATION

Reyansh: I helped fix the intakes on the Flyby robot and helped put some attachments on the flywheel so I could attach it to the robot.

Eshaan: I finished the autonomous code for the swish bot, it can now score all 4 goals automatically with 100% accuracy. I learned that there is a league on Dec. 11, and me and Roshan were unsuccessful with getting a 40 tooth sprocket and shaft connectors from Mr. Steele.

Roshan: I built a steady base for the flywheel. There is league on Dec 11, and we didn't get parts from Mr. Steele.

Elise: I made the code on VEX VR and learned about GitHub.

Project Reflection #5 Name Elise, Eshaan, Roshan, Reyansh
 Date 12/6

Elise: Today we did Code with VR and learned to set up Python code.

Eshaan: Today I learned how to and what I need to do when I upload or download from github and also learned how to save or vrvox.com. I finished coding the bot in vr to score all 4 goals and then keep scoring until the time runs out (124 points). I also started using text projects.

Roshan: I built a intake conveyor belt and fastened the flywheel down

Project

Reflection #6

Name

Elise, Eshaan, Roshan

Date

12/7

vEx IQ

PROPRIETARY INFORMATION

10

Eshaan, I helped make Flyby with its intake and intake support structure. I also coded the intake to work with the flywheel. I am going to make the code to let the intake work better with the flywheel and code in VSC3.

Project

Reflection #6

Name Eshaan, Roshan

Date

12/18

vEx IQ

PROPRIETARY INFORMATION

Eshaan: I learnt how to better code with VSC3, sorted parts, coded the intake to have an on/off switch, the flywheel to have an on/off switch, and a button to change the flywheel velocities. I went to the meet and saw other bots as well as modded FlyBots, and learnt more about python.

Elise: I learned to code the VSC3 and better it. I also sorted parts and coded the intake and flywheel.

Roshan: I built a better ramp and improved the flywheel. I need to make the motor stick to the intake.

Lexansh: I went to the robotics league and studied how other people play and their robots. My friend's robot had a catapult for the top switch and a conveyor belt for the bottom one. To save motors he used nevematics for the catapult.

Project

Reflection #7

Name

Eshaan, Lexansh

Date

12/12

vEX IQ

PROPRIETARY INFORMATION

12

Improvements on Bot

Building

- Drivetrain
- Strut on ramp
- Gear Ratios on Intake + Drivetrain
- Funnel for Ramp
- Claw
- Distance Sensor
- Efficiency of picking balls
- how well will it hold balls
- Temporary housing for brain
- Practice

Software

- Separate intakes Start/Stop Button

Sensors

- Start/Stop Button Flywheel

Connect Drivetrain

- Motor Speed adjustment for flywheel

- Start auto code when robot is built

Driving

- Practice throwing and driving (all)

feeding

- Practice Comp.

Project

Name

Date

vEX IQ

PROPRIETARY INFORMATION

1/15/25

- Elise : Today I am going to work on
- Separating intake buttons
 - Comet drive fan
 - Motor speed adjustment for flywheel

Project

Name

Date

vEx IQ

PROPRIETARY INFORMATION

14

Eshaan: we have a working robot now.

Today, we were learning auton by coding auton for swish using vr.vex.com using python. Claw shoots top goal at 80% and bottom at 40%

Ryanash: We built a funnel that was able to correctly direct the ball to the intakes. We also fixed a few problems with the flywheel

Elise: Today I worked on auton code to then be able to shoot.

Project

Reflection #8

Name

Eshaan Elise, Roshan

Date

1/24/25

vEX IQ

PROPRIETARY INFORMATION

Esham: I built a part of Dropshot, got coding instructions, and did driving and loading practice.

Elise: Today we were checking out field for automation and fixing min bot to make more reliable.

Roshan: I did driving practice and loading practice.

Project

Reflection #9 Name Esham Elise, Roshan

Date

1/25/2025

16

1/28/25

- catapult test
- attach conveyor belt
- make sure catapult can go with conveyor belt
- Take out the rubber flaps
- Alter the intake so the longer cata can still go down
- Make claw shorter so the ball doesn't move the bot after it's shot
- Alter the distance between the conveyor belts so the ball can go through
- Alter velocity of cata so it loads faster

Project Improvements on Name Eshaan

dropshot

Date 1/28/25

vEx IQ

PROPRIETARY INFORMATION

Things we need to do to prepare for tournament¹⁷

- Practice with bot (≥ 2 days)
- Fix starting auton skills code
- Rapid relay mode
- Finish the 1st version of auton code
- Check rules on auton
- Fix catapult
- Tune drivetrain
- Strikers on buttons
- Tune body
- Plan to show up on time
- Practice with stationary rule
- Tune the intake
- Go through all the rules
- Charge laptop
- Make the claw longer
- Bring itsave code
- Add another distance sensor
- Bring wire
- Make intake stronger
- Tune catapult
- Put sharpie on team number block
- Secure the brain better
- Choose drivers and leaders
- Tune the conveyor
- Build another bot
- Prioritize charging brain & controllers
- Finish assist code for skills

Project Rules for 1st tournament Name Eshaun

Date 2/5

Non-important

Important

2nd Distance Sensor - Eshawn	Practice with Bot (2 days)
Tune Conveyor	Rapid Relay Mode - Elise
Build 2nd Bot	1st Auton Code - Eshawn
Tune Drive Train	Fix Catapult - Roshan
Tune Body	Fix Claw - Reyansh
	Stickers - Elise
	Tune Intake - Roshan
	Go through Rules - All
	Sharpie Team # - Elise
	Secure Brain - Roshan
	Charging - Reyansh Eshawn
Drivers	Show up on time - All
Roshan	Charge Laptop - Eshawn
Eshawn	
Loaders	
Elise	
Reyansh	

Project Prioritization for 1st tournament Name Eshawn

Date 3/5

Goals for 2nd tournament:

- Reinforce and make conveyor faster ✓
- PID ✓
- Retractor ✓
- Fix catapult - should launch ✓
- Fix conveyor bump ✓
- Debug and fix teams softer ✓
- Tune auton waits ✓
- Get the 2 distance sensor ✓
- Fix the route for auton and side of field ✓
- Stop intake when catapult is up-anti-grav
- Test smooth wheels in the back of the drivetrain
- Driving practice ✓
 - second bot ✓
 - digital notebook

Project

Goals for 2nd tournament

Name

Eshaan

Date

3/12

vEX IQ

PROPRIETARY INFORMATION

20

Important

- Fix catapult
- PID Else
- Fix catapult Roshaan
- Fix (onverer bump) Reanch
- Debug and fix team software Ishaan
- tune auton waits Ishaan
- Ishaan • Fix the route auton and side of field
- stop intake when catapult is up Ishaan
- Driving Practice Everybody

Non-Important

- Reinforce and make catapult faster Roshaan
- retractor
- second bot
- get 2 distance sensors
- test smooth wheels in back of drivetrain
- digital notebook

Project Priority list for Name Eshaan
2nd tournament

Date 2/12

vEXIA

PROPRIETARY INFORMATION