DHIRUBHAI AMBANI INTERNATIONAL SCHOOL
ESTD. 2003

FTC Engineering Portfolio 2025-2026

Kryptonite

#28078

THE INNOVATION STORY

KRYPTONITE
#28078

Sponsored By

UPL OpenAg™

DECODE PRESENTED BY RTX

FIRST

Our Team and Goals

PROGRAMMING TEAM

Left to Right: Ved, Arav, Rehaan (Programming Captain), Ahaan (Electronics Head), Aadhar (Team Captain), Ainesh, Anaya, Aditi, Alaina

MECHANICAL TEAM

Left to Right: Arnav, Yatharth (CAD captain), Shaurya (Vice & Scout Captain), Kannan (Construction Captain), Aaryan, Saksham, Advay, Evanya

DRIVE TEAM

Left to Right: Zeus (Driver 2), Kannan (Human Player), Aadhar (Driver 1)

MENTORS

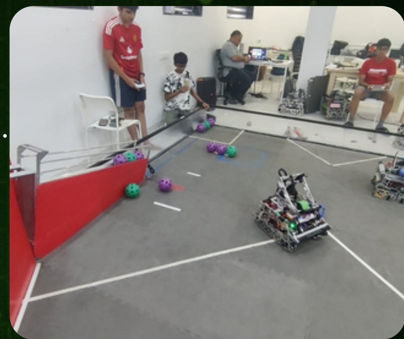
Pratik Panchal (Mech), Prathamesh Bapat (Programming)

TEAM GOALS

- Make **decisions** through **constant testing** and feedback so the **strongest ideas** shape our robot and strategy this season.
- Translate **individual strengths** into **reliable match performance** while avoiding single points of failure.
- Let all new members learn and have a **significant contribution** to the team and robot, allowing all of them to **grow their interest in robotics**.

GAME GOALS

- Deploy a **repeatable autonomous** that runs consistently across **all match conditions** and with **any alliance partners**, with rapid scoring.
- Consistently maintain **rapid teleOp scoring**
- Execute a **consistent endgame** to ensure real match reliability.
- Adjust match roles dynamically based on **alliance capability** and **field state**.



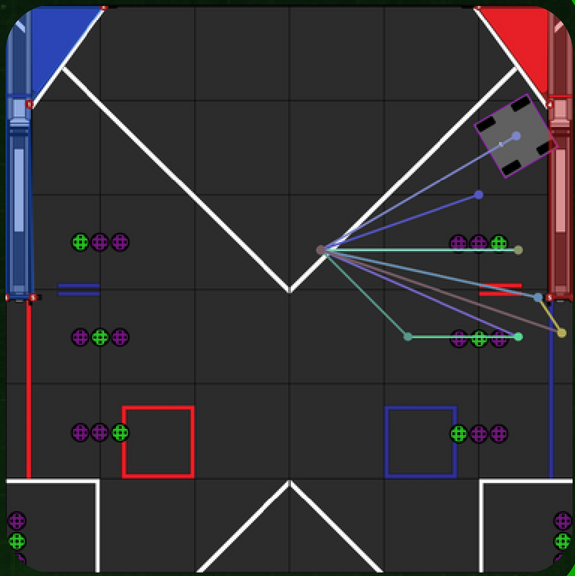
COMMUNITY GOALS

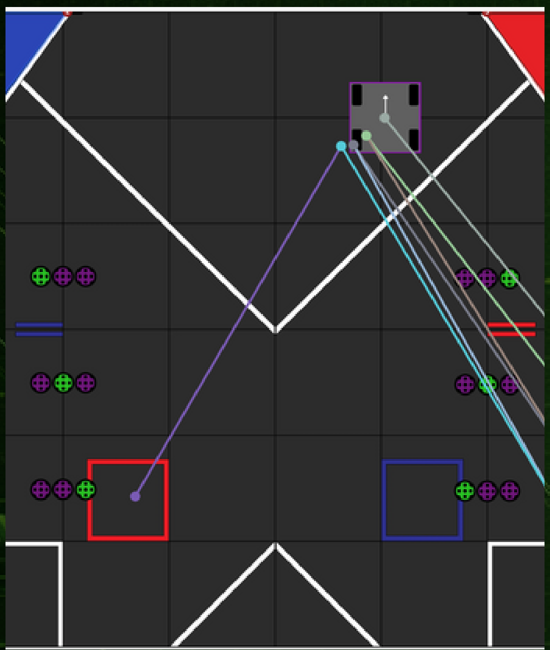
- Develop **community outreach** that **raises funds** for donation and expands **social impact**.
- Bring **new students** into FTC through **direct exposure** and **mentoring**.
- **Represent FIRST** through visible, student-led **STEM engagement**.

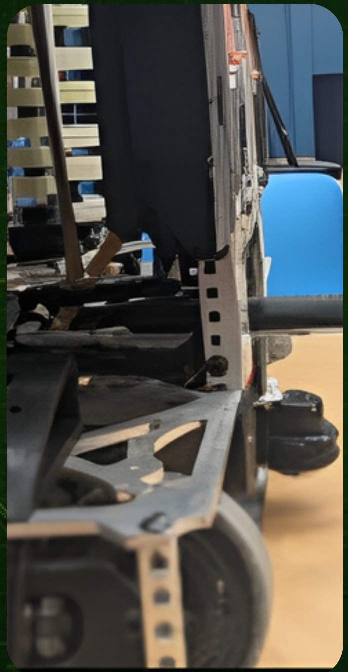
Overall Strategy

AUTONOMOUS PERIOD

- Our autonomous strategy primarily focuses on quick cycling and scoring. For longer-range shots, we utilize vision-based distance estimation with an ArduCam, allowing the robot to adapt if far shots become necessary.
- The routine is designed to be fully compatible with alliance partners, ensuring it does not interfere with their autonomous paths or motif creation.
- We also prioritize controlled robot movement so that both robots can achieve their leave points, ensuring that the Movement Ranking Point is not compromised.
- In our autonomous period, we first score our preloads, then attempt to score at least 6 artifacts already on the field. We then open the gate to retrieve at least 9 artifacts we have already scored outside, allowing us to score more and prevent overflow as it scores fewer points. We aim to score a total of 15 artifacts in the autonomous period, which gives us 45 points.





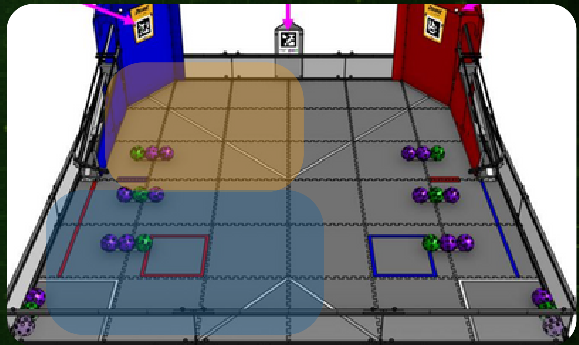


ENDGAME PERIOD

- In our endgame period, we plan to execute a full park by moving to the base zone when approximately 7 seconds are left.
- Once there are about 2 seconds left, the robot is fully parked and immobile, earning us 10 points and a total of 30 points for the alliance.
- We also aim to make sure that there is enough space for our alliance partners to deploy their own endgame mechanisms, enabling the entire alliance to successfully achieve a full park.
- We aim to score 3 cycles of artifacts in endgame so that we get pattern points and don't lose the pattern ranking points.

TELEOP PERIOD

- During the TeleOp period, we aim to score quickly in the first 1:30 minutes using a turret and autonomous hood with AprilTag detection via ArduCam.
- The system adjusts flywheel velocity and hood angle based on distance for accurate scoring.
- In the final 30 seconds, we open our gate and score artifacts following the motif pattern to earn a ranking point.
- We aim to score 40 artifacts, totaling 120 points in TeleOp, before the endgame.
- As highlighted in the image below, the yellow regions are primarily used when we are primarily shooting from the near zone, and blue regions are used when we shoot from far.



Accomplishments, Timeline and Gracious Professionalism

Timeline

July 2025

- Strategy & Design
- Testing & Outreach
- CAD & Prototyping
- Building & Programming
- Outreach
- Testing & Refinement
- Documentation
- West India Regionals
- Further Testing & Refinement

Feburary 2026

Accomplishments

- Debuted in 2024 (Into The Deep)
- India Regionals 2024:
  - 6th Place - Qualifications
  - 3rd Alliance Selection
  - Semi-Finalist
  - Design Award - 2nd Runner Up
- APOC (Asia-Pacific Open Championship):
  - 2nd Place in Qualifications
  - Winning Alliance - 1st Pick (Alliance partner: Iron Lions)
  - Innovate Award - Winner
- CV Raman West India Regionals 2025
  - Think Award 1st Place
  - 3rd Alliance

Gracious Professionalism

- Gracious Professionalism, coined by FIRST itself, is all about maintaining a perfect balance of tense competition and sportsmanship – something that Team Kryptonite wholeheartedly supports.
- We participate in all our matches with great enthusiasm all our emotions riding on one robot within an 18" cube but regardless of the outcome, our competitors remain our equals whom we treat with the appropriate level of respect.
- In our team, we make sure that we all help one another and that all of us contribute equally.
- We also try to help out any teams in need at a competition, whether it is with spare parts, refining their codes, or more.
- This is Team Kryptonite's second year and through our experiences and learnings, we have been able to improve this time.
- We highly advocate inclusivity, teamwork and cooperation.

Bot Overview

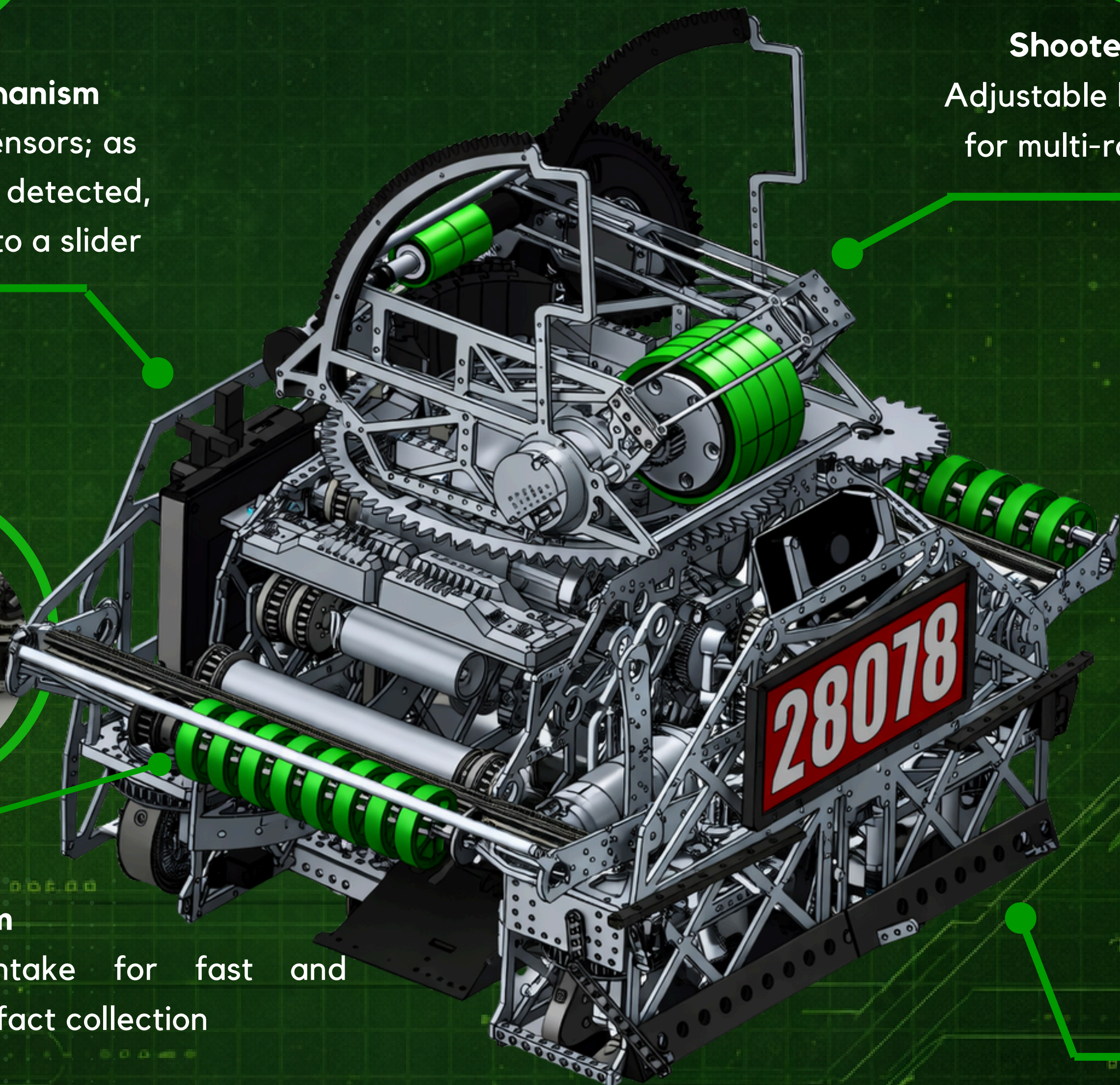
KR "KOBE" 36

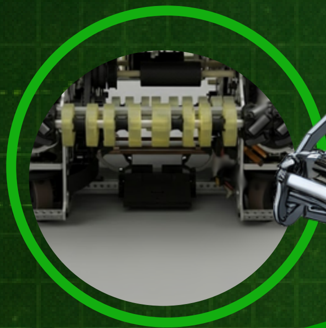
Robot Overview

Kr36 is a swerve-driven robot designed for reliable, precise, and alliance-aware play. It features a double-sided intake for faster artifact intake and an automatic, adjustable hood based on Limelight-calculated distance. Additionally, the swerve drive allows fast movement across all directions.

Feeder Mechanism
6 breakbeam sensors; as soon as artifacts detected, ball moves due to a slider

Shooter System
Adjustable hood flywheel for multi-range scoring





Intake System
Dual-stage intake for fast and consistent artifact collection

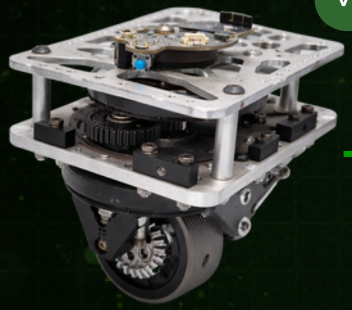
Swerve Drive
Independent wheel modules for precise omnidirectional movement

Swerve Drive

ITERATIONS

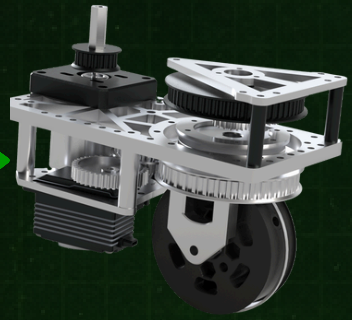
From initial prototype to modular final design

V1



V1 — Initial Swerve Module

V2



FINAL — Modular Swerve Module

ISSUES WITH V1 DESIGN

- Excessive weight due to dual 6 mm aluminum plates
- Increased rotational inertia reduced responsiveness
- Non-modular construction made maintenance difficult
- Repairs required partial disassembly of the chassis

FINAL DESIGN IMPROVEMENTS

- Single 6 mm aluminum plate reduced overall module weight
- Reduced rotational inertia increased responsiveness and efficiency
- Modular construction allows quick removal and maintenance
- Simplified structure improved accessibility and servicing, requiring a mere 5 minutes to maintain

Advantages Of Swerve

- We chose a swerve drivetrain as it allows us to strafe faster, as we get full thrust power in any direction.
- Additionally, a swerve drivetrain makes it harder for opponent bots to push us around, which is especially useful while shooting artifacts, as it makes our shooting more accurate.

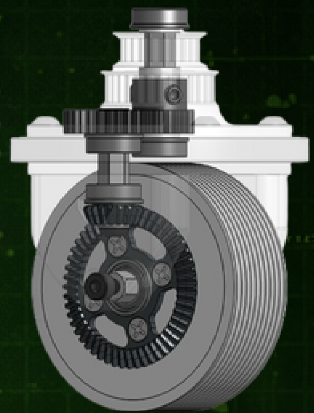
Technical Details

- We use a swerve drivetrain that uses four individual swerve modules, each that use one Axon Mini Plus Servo, and one GoBILDA YellowJacket DC Motor.
- In each swerve module, the GoBILDA YellowJacket DC motor rotates the traction wheel and controls the robot's speed. The Axon Mini servo motor changes the angle of the heading of the traction wheel.

Specifications

1. Gobilda YellowJacket DC Motor
   - 700 RPM
   - 1:8.64 Gear Ratio
   - Gives Force for movement
2. Axon Mini + Servo
   - 1:1 Gear Ratio
   - Changes Direction
3. Andymark Grey Tread
   - Gives grip to wheels

Module CAD



Drive and Intake RPM Calculations

Drivetrain RPM

- Our wheel is $64mm$ in diameter, and we average $1397mm/s$.
- Using these 2 quantities, we can derive the RPM.
- $Circumference = \pi \times Diameter = 64\pi$
- Then we divide the average speed by the circumference to get the wheel RPM:

$\frac{1397}{64\pi} = 4114.505$ RPM for our wheel

Intake RPM

- Our Intake is on average 1250 RPM, but our first roller is 1500 RPM since we want a higher RPM when the artifact is on the field, but higher torque once it is in the bot.

Shooter

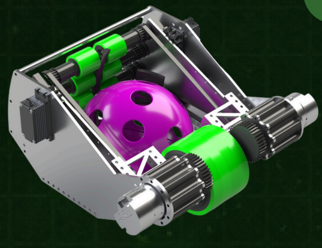
SYSTEM OVERVIEW

- The shooter consists of three main parts: a **flywheel, a turret and a hood**.
- The flywheel rotates using two DC motors to achieve a high velocity that can deliver a large amount of power to the artefacts, while minimising spin using **backspin rollers** on the hood.
- The hood controls the vertical trajectory of artifacts.
- Finally, the turret is a circular plate at the bottom that rotates the shooter **independently** of the rest of the robot. to control the horizontal trajectory of the ball.
- During the design process, we had to keep in mind the direction, ensuring that the trajectory wasn't too steep, and accuracy.

ITERATIONS

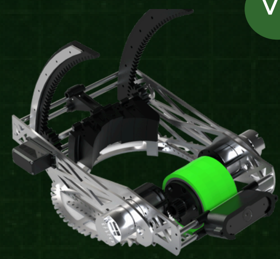
From initial prototype to modular final design

V1



V1 — Initial Shooter

V2



V2 - Shooter

V3

FINAL —Shooter

ISSUES WITH V1 DESIGN

- The first iteration of the shooter had backspin rollers, and had a **rack-and-pinion system** for the shooter.
- This didn't work as the rollers caused in a **near-vertical** shooting trajectory and the rack-and-pinion was too heavy.

ISSUES WITH V2 DESIGN

- The second iteration used the telescopic hood system with a **HIKVISION webcam**.
- However, the hood did not have support and kept bending and breaking, which we fixed in the final iteration. The webcam was also too heavy.

FINAL DESIGN IMPROVEMENTS

- Readded a **backspin roller** to balance the spin and prevent it from bouncing back out of the goal.
- Added the **ArduCam** for efficiency and reduced weight.
- Put the gear on the outside of the shooter, so strain is reduced.

TECHNICAL DETAILS

- Flywheel: Two 3-inch **Andymark stealth wheels** with internal metal rings, powered by 2 **Gobilda YellowJacket motors** (1:1 gear ratio).
- Turret: Rotates shooter 300° using an **Axon MAX servo**, includes an Arducam for AprilTag detection.
- Hood: Adjusts shooting angle via an **Axon MINI servo** (4:1 gear ratio) with a telescopic mechanism and backspin rollers.

Flywheel Inertia & Recovery Time Analysis

Purpose: Improve RPM stability and reduce recovery time between shots.

Added Mass:

6 internal mild steel plates × 30 g = 0.18 kg

Assumed Radius (from CAD):

r = 0.05 m

Result : Higher moment of inertia reduced RPM drop per launch, improving flywheel speed stability and significantly decreasing recovery time between consecutive shots.

Moment of Inertia (added):

$$I = \sum mr^2 = 0.18 \times (0.05)^2 = \mathbf{0.00045\ kg \cdot m^2}$$

Angular Velocity at 6000 RPM:

$$\omega = \frac{2\pi \times 6000}{60} \approx 628\ \mathrm{rad/s}$$

Additional Rotational Energy Stored:

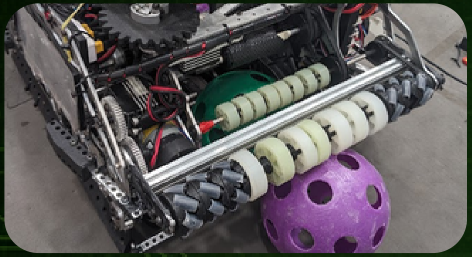
$$E = \frac{1}{2} I\omega^2$$

$$E = 0.5 \times 0.00045 \times (628)^2 \approx 89\ \mathrm{J}$$

Intake

Intake Overview

- Our robot is designed to intake artifacts from both the front and the back, allowing it to collect artifacts from multiple directions during the match.
- In addition to the 2 motors, we have a Servo-powered deployer/linker mechanism that extends in either the front or rear side, allowing the artifacts to be grabbed easily
- This increases collection speed, reduces the need for repositioning, and ensures that the robot can adapt to unexpected situations.
- Each side of the intake is powered by one Gobilda Yellow Jacket DC motor in the gear ratio 1:4.7

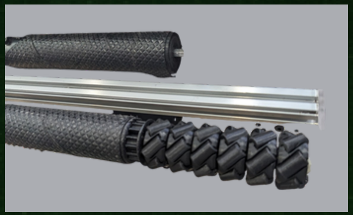


Intake Iterations

V1

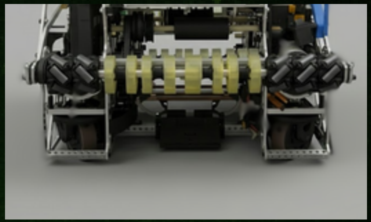
V1 — Initial Intake

V2



V2 - Intake

V3



FINAL —Intake

ISSUES WITH V1 DESIGN

- The initial intake design used a silicone tube paired with small PLA mecanum rollers.
- It lacked structural rigidity, causing the intake to tilt or deform when impacted.
- The small mecanum rollers were mechanically weak and frequently broke.
- The lower surface contact and ineffective friction led to a slow artifact intake.

ISSUES WITH V2 DESIGN

- Replaced the silicone tube with a plastic shaft wrapped in cat-tongue grip tape to improve friction.
- Added a metal beam between the first and second-stage rollers for additional strength.
- Increased intake speed and enabled more reliable initial artifact engagement.
- Rollers lacked rigidity and failed under impacts.

FINAL DESIGN IMPROVEMENTS

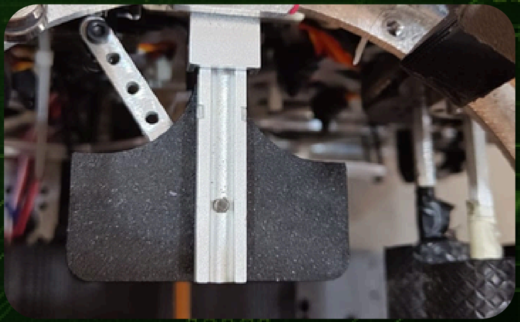
- Molded silicon rollers improved intake consistency across angles and speeds.
- Larger roller diameter increased contact area, enhancing grip.
- Larger mecanum wheels helped channel artifacts effectively.
- The first-stage roller was structurally reinforced to handle impacts.

Storage Logic

- Intake accepts artifacts from any side and auto-organizes them.
- 6 breakbeam sensors + deployer position track count and positions.
- Rollers spin simultaneously in opposite directions, centering the first ball.
- On second entry, 4 breakbeams trigger → intake motor stops.
- Deployer shifts balls to the opposite side for final entry.
- When all 3 positions are filled, motors stop and hold balls securely.

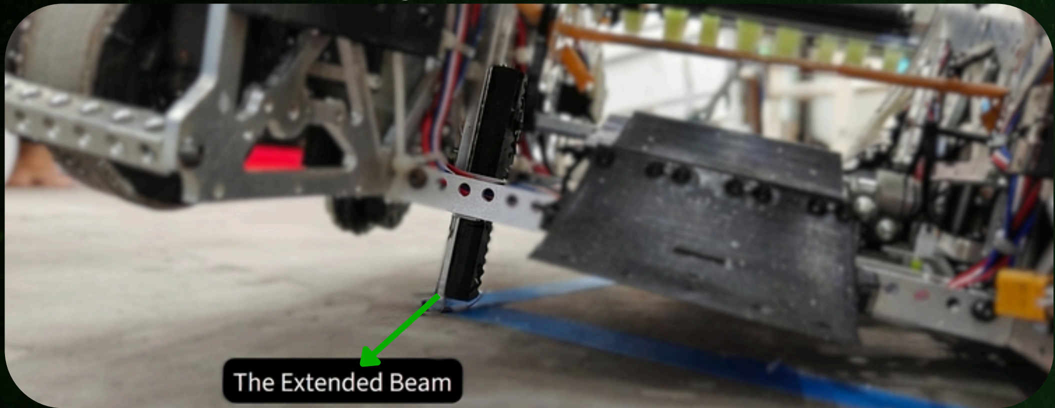
Slider Mechanism

- When all 3 balls are in storage, the slider mechanism comes in
- The slder mechanism makes sure that the balls stay where the are when they are in storage.
- The intake stops as soon as the slider mechanism comes out using an Axon Mini



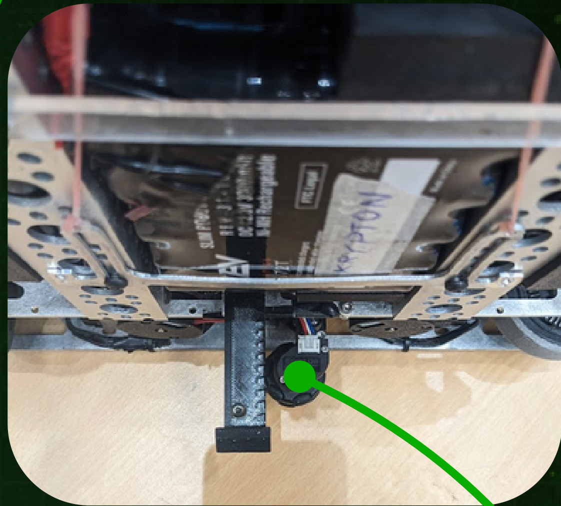
Endgame

Endgame Mechanism



Our endgame uses a **low-mounted beam** to engage the ascent zone in a controlled way. The goal was to make something that works even when the **robot isn't lined up perfectly**, rather than relying on speed or hard impacts. This mechanism **extends** a **beam forward** and **down**, using its shape and motion to guide the robot into position and **activate** the **latch reliably**.

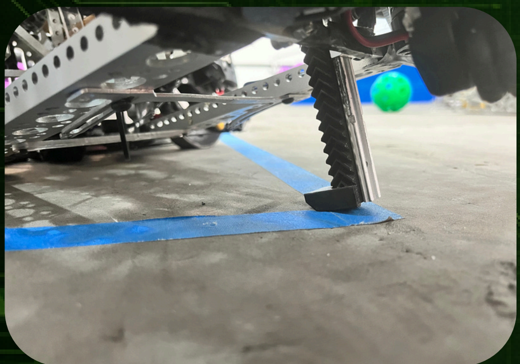
How it Works



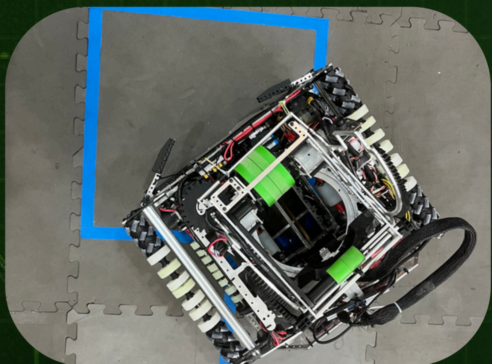
Bottom View Of The Bot

- A **rack-and-pinion servo** controls the extension of a beam downwards, which pushes the robot up at an angle.
- This limits the amount of space taken up by the robot, and allows a second robot to fully park in the **parking zone**.
- The servo is connected to a **common shaft** with the pinion beam, so when the servo rotates, the pinion slides down.
- A **herring bone** rack-and-pinion is used to prevent any misalignment during the process.

Further Images Of Our Endgame Mechanism



Alignment on Field



Space taken in parking zone

Why we designed it This way

- Prevents the robot from **slamming into the ascent zone**, which reduces **stress** and **damage to robot parts.**
- A **low mounting position** keeps the robot **stable** and lowers the chance of **tipping**.
- Sliding contact gives **smoother**, more consistent alignment than **impact-based designs**.
- **Passive alignment** helps **drivers line up faster** and makes the **endgame more reliable.**

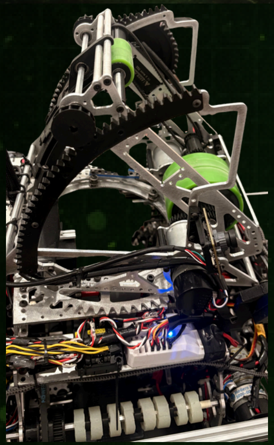
Odometry Pod

- An **odometry pod (dead wheel)** is a free-spinning, encoder-equipped wheel measuring movement, not driving the robot.
- It translates **encoder ticks** to linear distance via wheel rotation. Two or three pods enable robots to calculate **x, y, and heading**, minimizing errors from wheel slip, backlash, and motor inaccuracies compared to drive encoders.

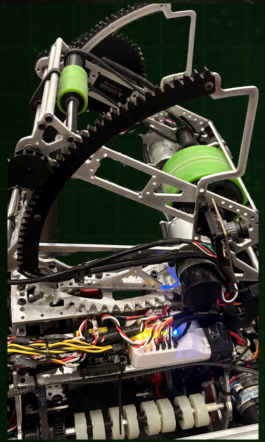
Other Unique Mechanisms

Variable-Angle Shooting Hood

FAR SHOOTING MODE



CLOSE SHOOTING MODE



Our flywheel shooter utilizes a **servo-driven**, adjustable hood to vary the launch angle in **real-time**, enabling accurate scoring from **multiple field positions** without requiring the robot to be repositioned. By adjusting the trajectory instead of robot alignment, the system **reduces setup time**, improves cycle efficiency, and increases **scoring consistency** throughout the match.

Autonomous Control Logic

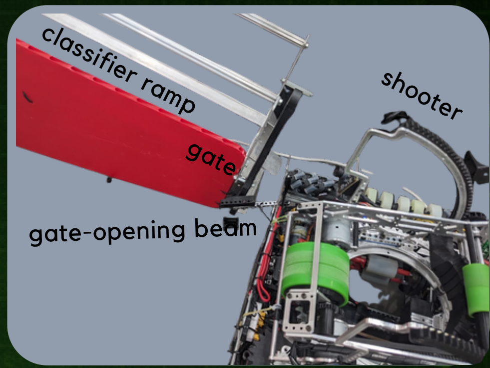
- During the Autonomous period, the robot uses an algorithm to **identify clusters of artifacts.**
- identify position of artefacts using **limelight** → identify artifacts that are close to each other → calculate **distance** to cluster using the **centre position** → find cluster to go
- The goal is to maximize the number of points scored after the preset sequence.
- Different setups with artefacts in different combinations are used to ensure that the algorithm works in all scenarios.

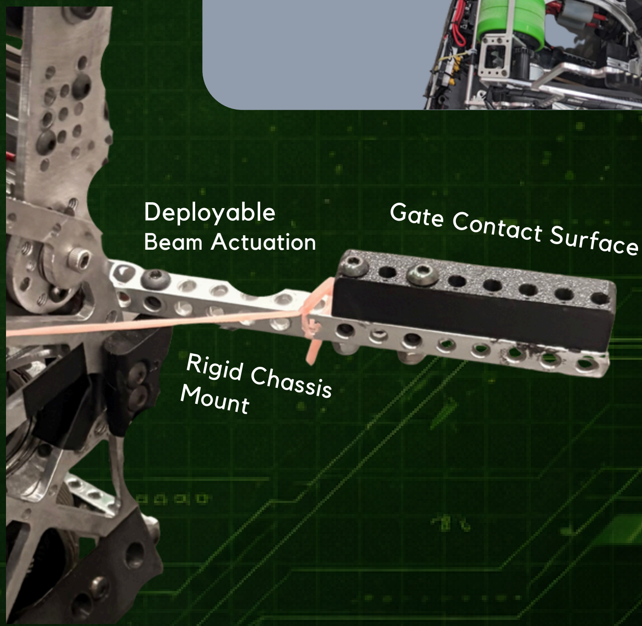
```
public Pose2d artifactGetPose(double x_offset, double y_offset){
    return new Pose2d( positionX: bot.pinpoint.getPose().position.x+x_off
}
1 usage
public ArrayList<ArrayList<Pose2d>> identifyClusters(LLResult result)
    ArrayList<Pose2d> artefactPoses = new ArrayList<>();
    ArrayList<ArrayList<Pose2d>> clusters = new ArrayList<>();

    for (int i = 0; i< result.getDetectorResults().size();i++){
        double y = 1.169*((Globals.mounting_height - Globals.artifact_
        double x= dist*Math.tan(Math.toRadians(limelight.getLatestRes
        artefactPoses.add(artifactGetPose(x,y));
    }
    for (int i = 0; i < artefactPoses.size();i++){
        ArrayList<Pose2d> cluster = new ArrayList<>();
```

Gate-Opening Beam

- Uses a **deployable beam** to open the **ramp gate** instead of pushing it with the **chassis or intake**
- The beam **extends forward when activate** and directly contacts the gate latch to trigger release
- This avoids **hard impacts**, **reducing stress** and preventing damage to the intake, drivetrain, and frame
- The design works reliably even when the robot approaches the gate at different angles





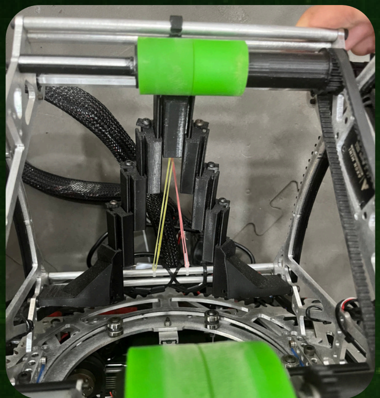
Programming - Auto and Shooter

ArduCam

We use an ArduCam to scan the AprilTags on the goal. This is mounted on the side of the shooter, and controlled using an inbuilt library in RoadRunner with our edits. We use the yaw, pitch, x, and y outputs from the camera for our shooter system

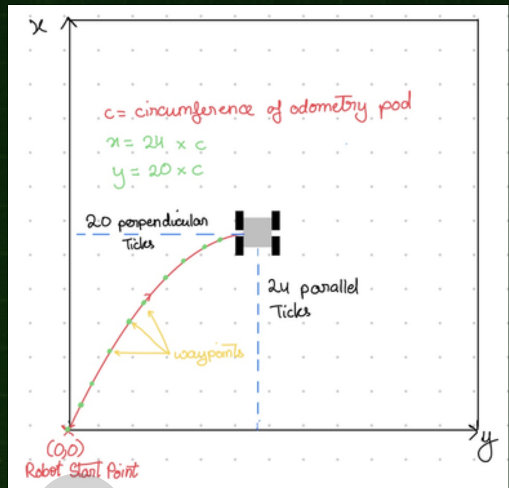
HOOD POSITIONING

We use the pitch output from the ArduCam, along with trigonometric functions (sin, cos, tan) to calculate the hood angle. This allows accurate shooting from any position in any launch zone

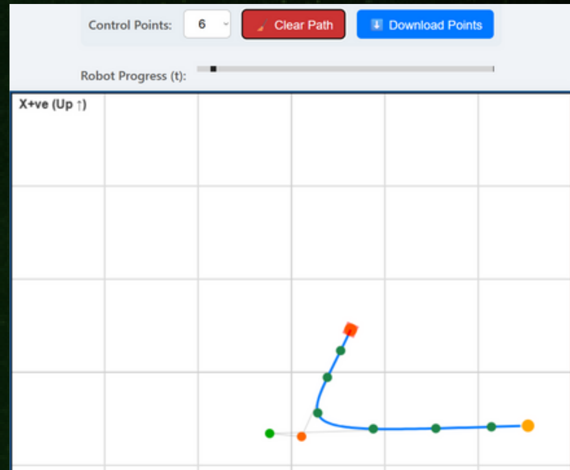


Pinpoint Localizer

Our robot uses a GoBilda odometry pod, a free-spinning wheel that does not drive the robot, as a pinpoint localizer. There are 2 wheels used, one for perpendicular ticks (to calculate x-offset) and one for parallel ticks (to calculate y-offset). The number of encoder ticks, rotations of the wheel, is multiplied by the circumference of the wheel to find its position relative to its starting point.



Path Planner



- We designed a Bezier path-editing website to help plan paths for the Autonomous period.
- The website then generates the Pure Pursuit Java code automatically.
- This makes the programming process faster and more efficient.
- Paths are tested in different conditions to ensure precision in pickup and shooting.

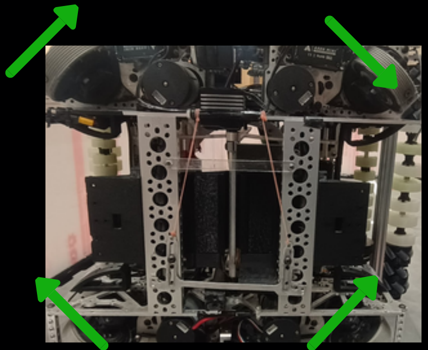
Shooting Velocity Control

The flywheel velocity is determined using AprilTags, working in conjunction with the hood. Velocity control, rather than motor power, ensures consistent ball exit speed despite battery fluctuations. A PIDF controller rapidly ramps up to the target velocity and recovers speed after each shot.

Limelight Camera

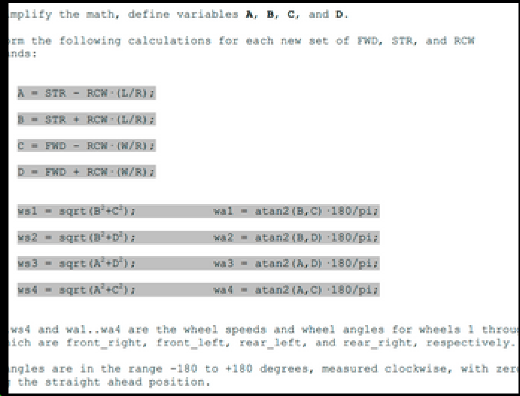
The Limelight camera is used to identify clusters of artifacts in the autonomous period, and their colour for pattern shooting. We have trained it using an extensive RoboFlow database, where we labelled and defined over 500 images of artifacts. We also have multiple versions of the database for different lighting conditions.

Swerve Drive Overview



The swerve drive class consists of four modules. Each module contains an Axon Mini Plus continuous rotation servo, a DC motor and an encoder. Kinematics equations are used to control the angle and speed of each wheel so that they are always at a tangent to the path. PIDF was used to ensure that the position of the servo is precise. This is then mapped to the gamepad such that the left joystick controls strafing and speed while the right joystick determines the rotation.

Software Equations



mplify the math, define variables **A**, **B**, **C**, and **D**.

rm the following calculations for each new set of FWD, STR, and RCW
nds:

```
A = STR - RCW·(L/R);
B = STR + RCW·(L/R);
C = FWD - RCW·(W/R);
D = FWD + RCW·(W/R);

ws1 = sqrt(B²+C²);          wa1 = atan2(B,C)·180/pi;
ws2 = sqrt(B²+D²);          wa2 = atan2(B,D)·180/pi;
ws3 = sqrt(A²+D²);          wa3 = atan2(A,D)·180/pi;
ws4 = sqrt(A²+C²);          wa4 = atan2(A,C)·180/pi;
```

ws4 and wa1..wa4 are the wheel speeds and wheel angles for wheels 1 throu
ich are front_right, front_left, rear_left, and rear_right, respectively.

ngles are in the range -180 to +180 degrees, measured clockwise, with zer
the straight ahead position.

These equations, that allowed us to get the wheel angle and speed for each module, can be mapped to the gamepad so that the driver can use the left stick for strafing and power and the right stick for rotation.

Drive Kinematics

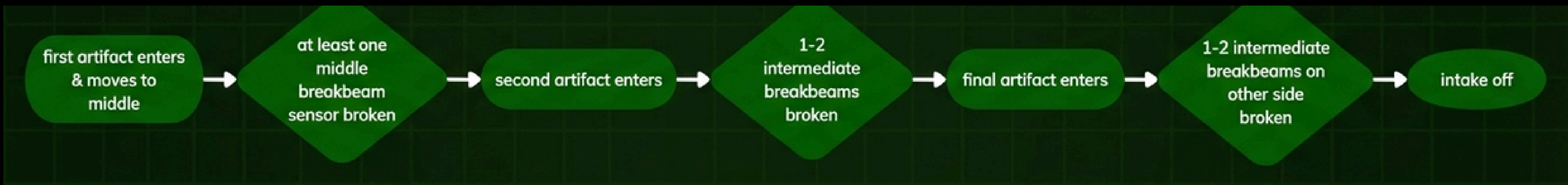
To allow the robot to **follow a specific path**, the **following swerve kinematics** were integrated into the drivetrain classes:

- **Continuous Rotation Servos: Power** adjusted to maintain module tangency.
- **DC Motors**: Speed synchronized to the trajectory curve.
- **Path Alignment**: Modules remain tangent to the curve at all times.

```
backLeftModule = new SwerveModule(robot.backLeftMotor, robot.backLeftServo, new
backRightModule = new SwerveModule(robot.backRightMotor, robot.backRightServo, new
frontRightModule = new SwerveModule(robot.frontRightMotor, robot.frontRightServo,

modules = new SwerveModule[]{frontLeftModule, frontRightModule, backRightModule, b
for (SwerveModule m : modules) m.setMode(DcMotor.RunMode.RUN_WITHOUT_ENCODER);
R = hypot(TRACK_WIDTH, WHEEL_BASE);
```

Intake Software & Logic



Outreach

Overview of Our Work

INTERACTIVE WORKSHOPS

Organized workshops where student **build robots, test designs, and develop technical skills**, giving them **hands-on exposure to STEM,** outside of what can be done in a classroom.

SIMULATED COMPETITIONS

Hosted scrimmages that **emulate real FTC settings**, helping local teams become comfortable with the structure of an FTC competition and sharpen their skills and strategies and **spot weaknesses** early on.

GLOBAL TEAM COLLABORATION

Collaborated with and reached out to FTC teams worldwide through **online discussions** to exchange **strategies and design insights,** upholding the FIRST value of Coopertition

STEM ACCESS EXPANSION

Provided resources and mentorship to **under-resourced schools**, broadening access to **STEM education,** thus sparking passions and providing the resources to pursue careers in STEM

Relationships With Other Teams

We not only **build relationships** with our team members, mentors, and sister teams but also with teams from all over the world. For example; we as a team have built relationships with teams from Kazakhstan like **POINT, SEN,** teams from Australia like **Theseus, Barker Redbacks and Iron Lions**, and American teams like **Roboknights.**

Through mentorship, engaging demos with our robot, and **practical STEM experiences**, we inspire new students to explore robotics, learn **problem-solving skills**, and tackle real-world challenges.

Government School Sessions

We have been conducting robotics sessions with **6th grade BMC school students**, introducing them to the fundamentals of **STEM, circuitry and programming**, as well as the process of designing a robot to complete a task. The initiative aims to **broaden access to STEM education** and inspire curiosity about technology amongst young minds. It encourages students to experiment hands on and gave them **hands-on exposure** to robotics. Overall, the sessions were well-received and helped foster confidence and interest in robotics among younger learners. We conducted 6 sessions over 4 weeks, towards the end of December 2025.

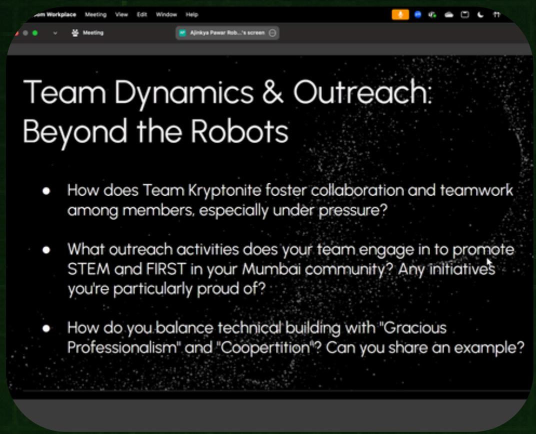
Project Udaan

On the 15th of February, 2025, working together with teams **Matrix, Paraducks and Eureka**, we had about 330 under-privileged students from government schools, participate in **Project Udaan**, where they learned basic robotics concepts in a skill-building session, by the end of which they had built their own simple robots. In the process, we **introduced them to basic STEM skills.**

After the skill-building session, we provided each team with a **sample robot**, taught them how it worked, and allowed them to put their skills to the test in an exciting game of **ludo**, robotics style.

Outreach Meetings

1. As a senior FTC team, we mentored Team Roboknights from Florida, providing valuable feedback on their drivetrain, specifically recommending a ground clearance of at least 9mm to prevent scraping.
2. We also met the Romanian team #22586 CNapSys, sharing ideas on outreach and driver strategy. Moreover, we discussed how to work effectively in a team, ensuring that everyone has a role that suits their abilities
3. Robokings Thorium #18439: on the 7th of September 2025, we met team #18439. We talked about endgame mechanisms, especially the best way to allow both robots in an alliance to achieve a full park, whether through a platform raise requiring greater power, or an extended beam, which depends on the alliance partner to have a similar strategy.

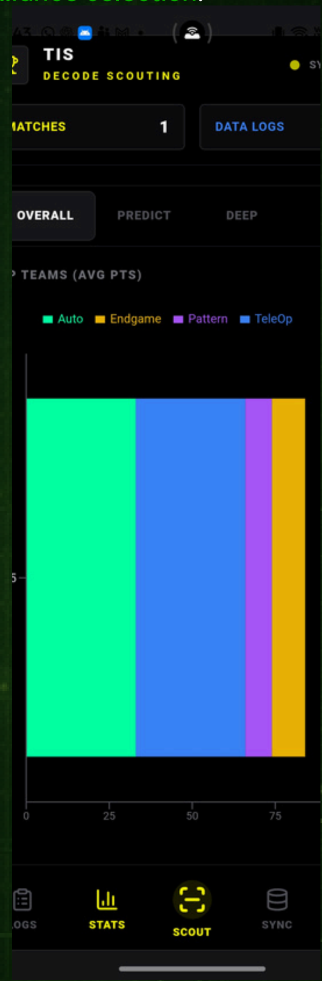


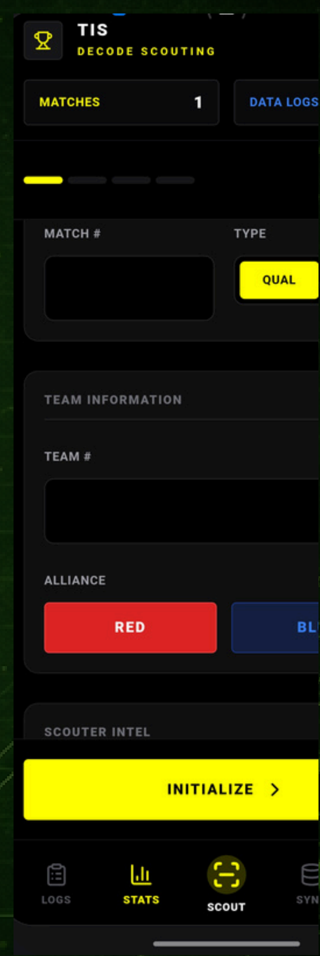
Scrimmages

We organised a scrimmage for 8 teams to help them practice in competition conditions, helping them understand the competition through first-hand experience and get an idea of how its procedure goes. Moreover, it provides teams with a vital opportunity to locate weaknesses in their robot or driving which need to be fixed. We ended up coming second in this Scrimmage, giving us the confidence to participate well during the Regional Championship.

Scouting

We developed an app that streamlines scouting by presenting data in both visual and text-based formats. In addition to our own team, seven other teams (including NGO teams) use the app to strengthen and improve their scouting process and alliance selection.

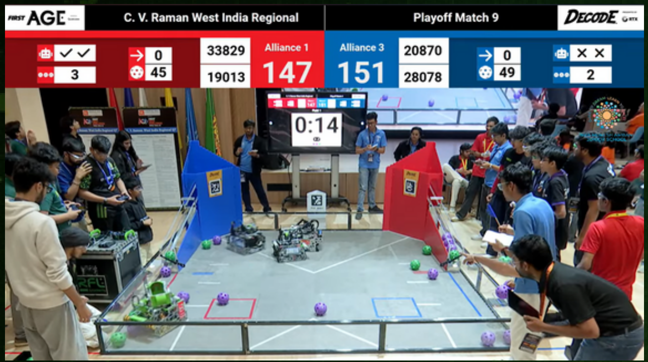




Outreach

Hosting the 2026 West India Regionals

This year, the West India Regionals Competition was held at Nita Mukesh Ambani Junior School. Our team played a pivotal role in persuading our school authorities to host the event, which helped significantly in the logistics of the competition.



DAIS FÊTE

Last year, at our school's Fête, we raised over 30,000 rupees by developing an online game called "Sample Takedown" based on the season "Into the Deep", where an online robot had to collect specimens without touching the borders. This introduced participants to FTC in a fun and interactive way. We donated the money we collected to the Aseema Charitable Trust, an NGO that provides resources to marginalized community.

Mentoring Team Sanlakp SK2

A key part of our outreach was guiding the hearing-impaired team Sankalp SK2 (#22571), teaching them how to work with CAD and program their robot. We taught them how to go about designing the robot, thinking about each of the functions that the bot has to perform, which in our case, includes intaking artifacts, shooting them, and driving the robot.

Mentoring Team Up-A-Creek

During the season, we interacted with team Up-A-Creek #11260, last year's winning alliance captain at the FTC world championship. Through discussions and a Q&A session, we gained insights into advanced robot design, match strategy, and team organization at the highest level of competitive robotics. Our key takeaways included prioritizing reliability over unnecessary complexity, in-match adaptability, efficient pit organization.

Fundraising

The Importance of Fundraising

Fundraising and sponsorships are what provide us with the money to buy materials for our robot, which is an understandably expensive process, as well as to fund our outreach projects, ensuring that we can reach as many people as possible.

Everyone in our team actively works towards finding sponsors, reaching out to companies, introducing them to FIRST and explaining to them how the money they provide goes towards supporting the development of robotics.

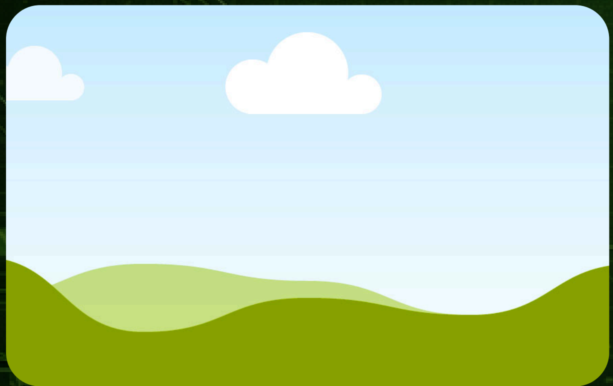
Universal Phosphorus Limited

Universal Phosphorus Limited (UPL) is an Indian multinational company, a pioneer in the development of sustainable agricultural solutions.

This year, they generously provided us with INR 100,000 to provide us wiht money for bot parts, travel and outreach projects. UPL is a major agricultural giant, that incorporates sustainablity in farming. It is present in 140 countries, and has access to over 90% of all produce around the world.

Our Website

Our website enhances our visibility to other companies, providing crucial information on who we are as a team. They build our credibility and help us tell the story of who we are as a team.



The Innovation Story

The Innovation Story is an incorporation that promotes teachings of programming and CAD. They are our sponsors, and they give us everything we need. They

DAIS & NMAJS

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