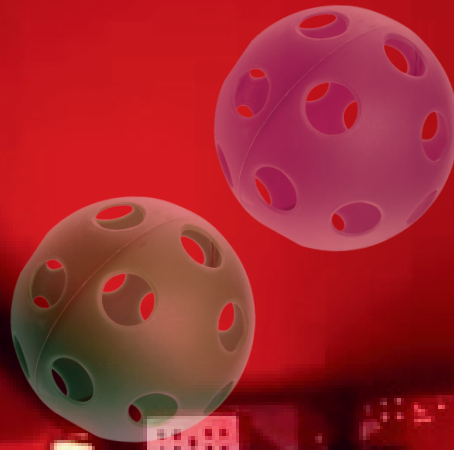


TEAM #24438

DECODE EDITION

CRE8 TIME FUTURE

ACROPOLIS, IOWA



CRE8

A SEASON IN

REVIEW



FOREWORD

Dear Readers,

Thank you for taking the time to read our portfolio. We are FIRST Tech Challenge Team #24438- Cre8 the Future, from the Acropolis League of America's Heartland, Iowa. This is our third season as a team, and our proudest yet. Not entirely because we have built the best robot we could, or because we have finally figured out which pizza hits hardest during 11 p.m. lock-ins. While we are proud of those moments, this season was really about something bigger. It was about what it means to be an FTC team. For us, that meant taking the engineering process seriously. Questioning our designs, documenting failures, iterating, and using both data and reflection to **innovate** (p. 3-4). It meant using software and **control** systems like our STUP, not as an afterthought, but as a core part of how our robot functions (p. 6). It also meant spending great thought on the **design** behind building a robot that struck a balance. One that looks striking on a field but also works strikingly (p. 7).

But it also meant recognizing that FTC does not stop at the field. For us, being a complete FTC team meant expanding the **reach** of FIRST in our community. Mentoring younger teams, serving the community outside of robotics, and creating programs that give back with no expectation of return (p. 8-13). It meant planning for the future of our team, developing leadership, building partnerships with companies. Ensuring that we **connect** with our future, and **sustain** a team beyond just this season (p. 2, 11).

But most importantly, it means being there for each other. Being there for other teams. Being there for the community, and being good people. At the end of the day, we have hit every checkbox we hoped to accomplish as ambassadors of the FIRST Program. **Thinking**, (p. 3-7) and most importantly, **Inspiring** (p. *the whole portfolio* :) our way through a season that we are all so proud to share with you.

Although we'd like nothing more than to walk out with the Inspire award, was it about the awards? Never. This season, we guarantee every team member, coach and intern has many things that they can go to sleep smiling about even if we don't even advance to state at all. Whether it is a Cre8Cares service project like the food drive, partnering with an engineering firm all the way in India, or maybe our hooded outtake system. We are just proud to be a part of the FIRST movement. Enjoy our story <3

FROM TEAM #24438 LEADERSHIP

Coach Pavan (9 years in FIRST), Coach Anil (4 years in FIRST), Sathvik (10 years in FIRST), Neil (9 years in FIRST), Parjanya (10 years in FIRST), Shreshta (3 years in FIRST)

SUSTAINABILITY

This season, our team had a goal of organization and accountability. As a result, we ensured that all money was accounted for. From global sponsorships and fundraising to money spent on food and our Cre8Cares Foundation, we kept accurate track all season long. These records get archived and copies get sent to our Parent Booster organization, Sponsors, and parent 501(c)(3).

2025-26 Season Sponsors:



Budget and Spending Log:

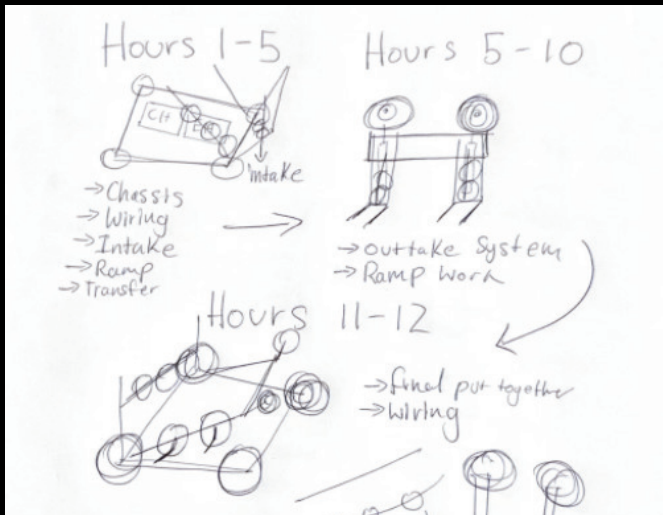
Description	Type	Amount	Totals:
Balance Carryover	Income	\$3,000.00	Remaining in Bank:
Sponsorships	Income	\$5,300.00	\$7,437.00
Parent Booster Organization	Income	\$3,000.00	Total Funding (Minus Carryover):
Fundraising	Income	\$2,070.00	\$14,670.00
Misc.	Income	\$1,300.00	Total Spending:
Season Starting Costs	Expense	-\$1,500.00	-\$6,453.00
goBILDA Parts/Hardware	Expense	-\$2,423.00	
Food and Drink	Expense	-\$570.00	
REV Parts/Hardware	Expense	-\$340.00	
Cre8Cares Foundation Budget	Expense	-\$420.00	
Merchandise	Expense	-\$1,200.00	
Misc.	Expense	-\$780.00	

THE DESIGN JOURNEY

We started the season with MAXIMA, a spin off of goBILDA's starter bot. This robot provided us with stability in initial competitions, but lacked key features necessary for moving up the rankings, such as an intake mechanism.



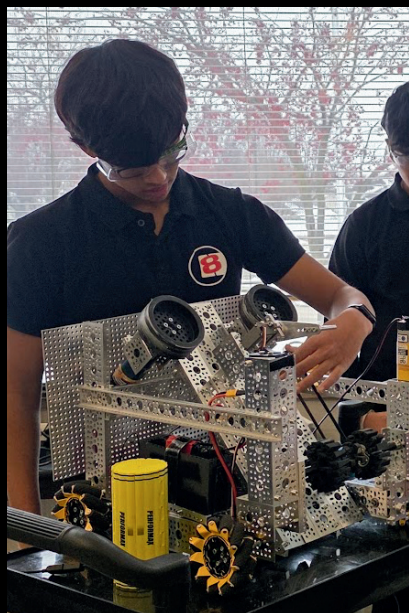
#24438's MAXIMA
Scrimmage, League Meet 1



#24438's 12th Hour
League Meet 2

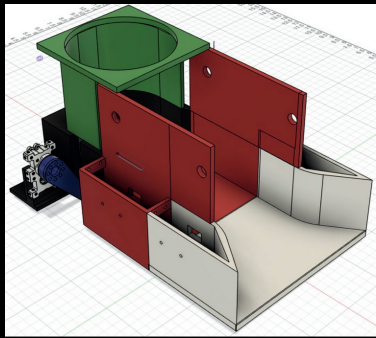
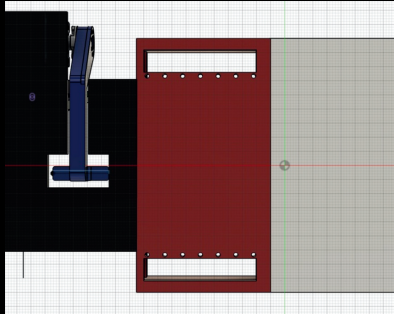
We then dismantled MAXIMA and attempted to build a 'robot in 12 hours' prior to League Meet 2. We went with the double-wheeled outtake, as it seemed to be an easier build. An experiment that turned for the worse when our rushed design had fundamental flaws that were exposed during a forgettable meet.

Choosing to expand upon the two-wheeled outtake design of 12th Hour, our next robot filled in the functionality gaps that we identified during Meet 2. We developed RAMPager over the course of the next 3 league meets, struggling to fix the same two problems- a "kick" mechanism and the outtake contact point. After many different attempts and failed fixes, the two-wheeled outtake design began to be questioned.

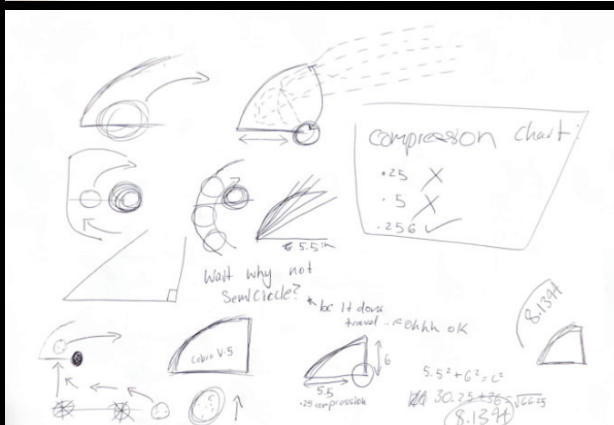
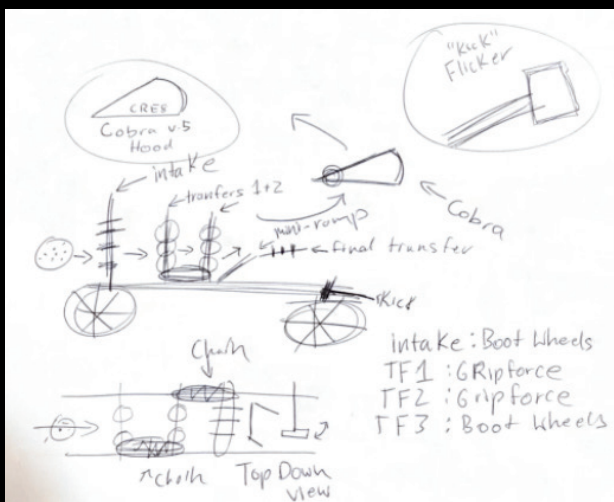


#24438's RAMPager
League Meets 2, 3, 4

In the weeks leading up to Meet 3, we identified that the two-wheeled outtake model on RAMPager was not optimal. After repeated concerns with the design, we set aside a specialized team, with the objective of designing an 'optimal' outtake system. A hood with an arc. Made from PLA, **COBRA's** goal was to master consistency first. After 5 weeks of dedicated designing, calculating, testing, PID velocity tuning, and 4 draft iterations, **COBRA v.5** was created for our final Robot design. The first iteration of the robot name The Boss was debuted Meet 5.



#24438's The Boss
League Meet 5



The rest of the robot was designed to support **COBRA v.5** with an Intake and transfer systems made of grip wheels—a change from the boot wheels used on the previous bots. The intake and transfer system were also separated, in order not to compromise on motor RPM. The inside of the robot was also modified from a ramp to a flat path for the artifacts to easily and quickly travel from the intake to the outtake. Our kick mechanism also was perfected, with a 'down to up' flicker that ensure the artifact reached **COBRA** 100% of the time.

CAITLIN 22

Our Final Robot, named in honor of Iowa's pride on the court.

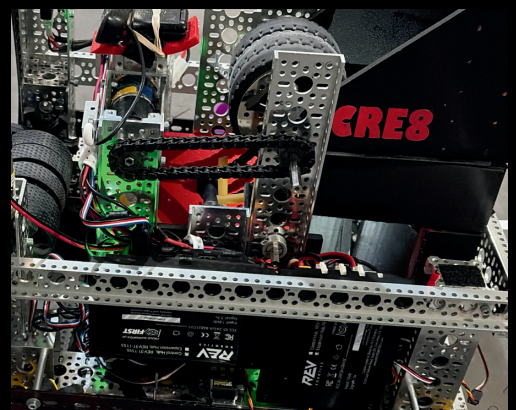
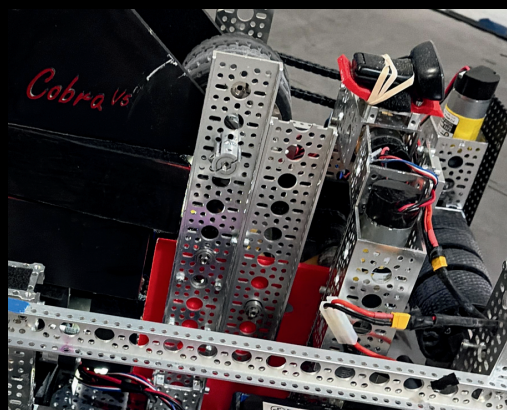
After a very successful final League Meet, we were satisfied with the design of The Boss. Leading up to the Qualifier, we spent time identifying minor flaws and pitfalls within the robot and took steps to upgrade or fix them without compromising on the design.

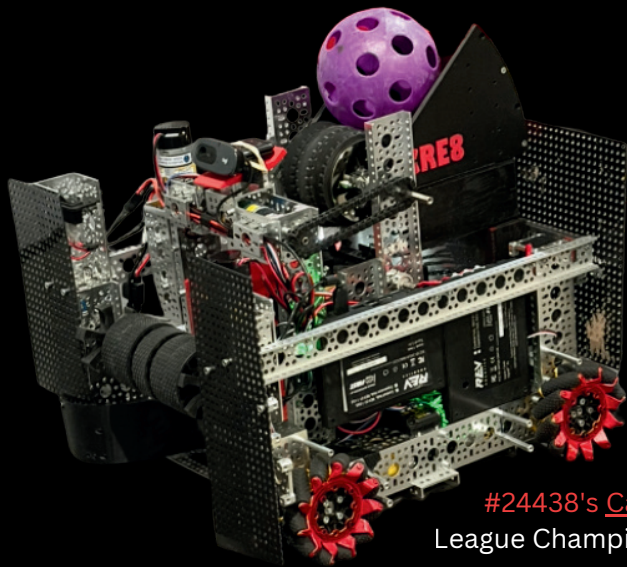


Reference image used for educational inspiration. Image credit: Iowa Athletics.

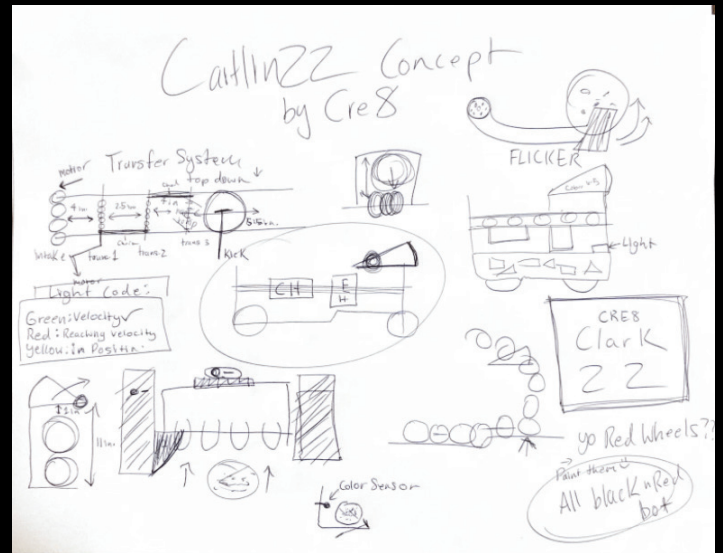
✓ Consistency ✓ Flicker Accuracy ✓ Built for Defense ✓ Transfer Efficiency

The Boss	Caitlin
<u>Pitfalls</u>	<u>Solutions</u>
Flicker Speed	→ Upgraded to Superspeed servo
Autonomous Efficiency	→ Utilized Pedro Pathing instead of Roadrunner
COBRA Losing Velocity	→ Added Steel Flywheels → Recalculated PID
Drivetrain Speed	→ Upgraded 312 rpm motors to 435 rpm
Lacks Efficiency	→ Systems Tech Upgrade Package (STUP) → Camera





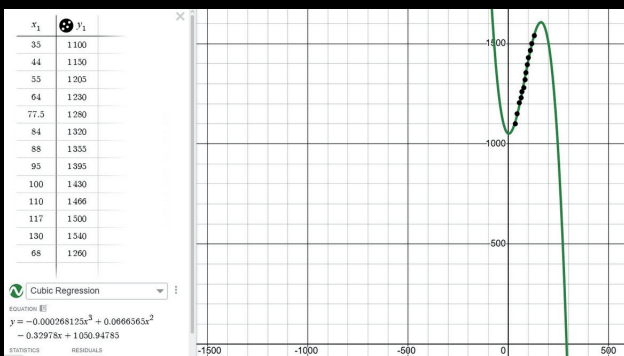
#24438's Caitlin22
League Championship



STUP is a set of technological systems and features added onto our robot to increase general efficiency. Utilizing various data from Telemetry, Odometry, sensors, and the camera, **STUP** targets gaps in shooting and autonomous performance to drivetrain enhancement.

SYSTEMS TECH UPGRADE PACKAGE

```
public static FollowerConstants followerConstants = new FollowerConstants()
    .translationalPIDCoefficients(new PIDFCoefficients(0.09, 0.01, 0.01, 0.01, 0.0235))
    .headingPIDCoefficients(new PIDFCoefficients(1, 0, 0, 0.002, 0.025))
    .drivePIDCoefficients(new FilteredPIDFCoefficients(0.00001, 0.01, 0.0, 0.25, 0.0))
    .forwardZeroPowerAcceleration(-33.136759424381665)
    .lateralZeroPowerAcceleration(-79.68889427589293)
    .mass(11.5);
```



```
159 //intake + transfer
160 intake.setPower(Math.min(gamepad2.left_trigger, 0.75));
161 transfer.setPower(gamepad2.left_trigger);
162
163 if (!kickRunning) {
164     intake.setPower(Math.min(-gamepad2.right_trigger, 0.75));
165     transfer.setPower(-gamepad2.right_trigger);
166 }
167 else {
168     intake.setPower(0);
169     transfer.setPower(0);
170 }
171
172 if (gamepad2.x) {
173     flywheel.setVelocity(0.0);
174 }
```



Field-Centric Movement



Odometry Assisted Parking



April Tag Identification



Artifact Color Detection



Target Velocity Recognition



Pre Shoot Auto-Positioning



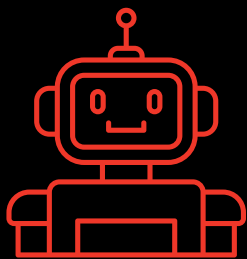
Transfer-Flick Automation

COBRA v.5 and **STUP**, are the game-changers on our robot. Both exemplify the design and engineering process. We did testing, iterations, tuning, retesting, and so much more to create a product that the whole team is proud of.

BUT FOR US, FTC IS MORE THAN ROBOTS.

#FIRSTINSPIRES

As a 3rd year FTC Team, this season, one of our goals was to focus more on the community that gives us so much, expanding the FIRST program, and inspiring a new generation. Our Outreach Plan had 3 objectives this season:



1. Reach

- STEM Door to Door
- Expos/Demos
- Fundraisers
- Corporate Outreach



2. Serve

- Food Drive
- Cre8 Strong



3. Inspire

- InspireHerFuture
- FutureFocused
- Internship Program
- FLL Mentoring

All three of these link directly to the overarching idea of making an impact on the world around us. Our team took this very seriously.



In order to achieve this ambitious outreach plan, the department split into two parts - the “traditional” outreach department, and a brand new Cre8Cares Platform. The program’s purpose was to handle all the initiatives that existed purely to make an impact on the community expecting nothing in return. While the outreach department took care of sponsorships, fundraisers, and team demonstrations at events, Cre8Cares focused solely on how to make the community a better place.

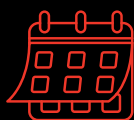
CRE8 Cares



200+
Service Hours



\$0 In Profit



7 Initiatives



900+
Families Reached

“EVERY CRE8CARES
EVENT FEELS LIKE A 7
RANKING POINT WIN
FOR ME.”

Sastha Kode
Outreach Lead

“IT MAKES ME SO PROUD
TO SEE MY TEAM COME
TOGETHER FOR A BIGGER
CAUSE THAN ROBOTS.”

Anil Sama
Coach

“THE MISSION IS SIMPLE: **INSPIRE**
JOY AND **SERVE** THE COMMUNITY
THAT’S GIVEN US SO MUCH.”

Parjanya Manchikanti
Cre8Cares Foundation Director

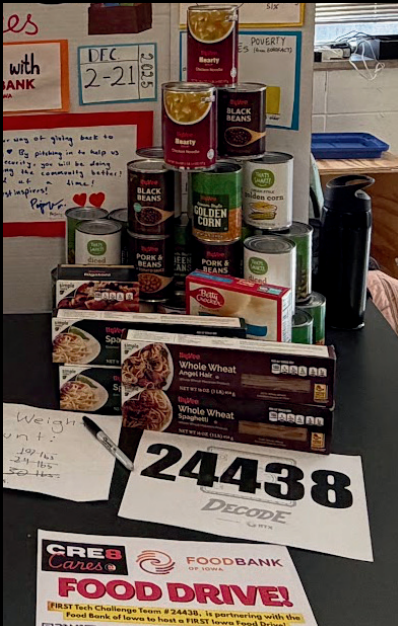


INITIATIVE 1: FIRST IOWA FOOD DRIVE

In partnership with the Food Bank of Iowa.

During a Meals from the Heartland service event, Parjanya was stunned by the Iowa food insecurity statistics he found. This inspired us to host a food drive with the Food Bank of Iowa where all the FIRST Iowa teams could pitch in to help us fight for the community.

We raised 64.5 lbs!

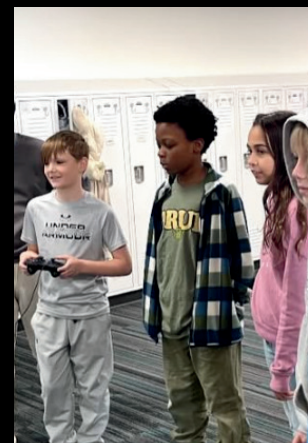


INITIATIVE 2: FUTURE FOCUSED

In partnership with the Waukee Community School District.

We visited elementary schools in our area, to demonstrate our robot, explain the FIRST program, and give the 5th graders an insight into what a High School career in robotics could look like. This included a look inside our robot, code and CAD, as well as a walk through of what goes into FTC.

300+
Kids Reached





INITIATIVE 3: CRE8 STRONG

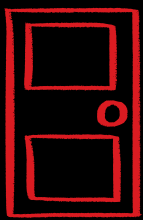
In partnership with the National Alliance on Mental Illness.

We noticed an increase in mental health issues, especially among teenagers. Being teenagers ourselves, we wanted to raise awareness about the importance of calling for help. That's why we partnered with NAMI in order to spread information about the teen mental health crisis.

We made bright green ribbons to hand out, had a trifold at our pit with information and Parjanya gave a speech about awareness during the meet!

“EVEN IF ONE PERSON FINDS THE COURAGE TO SEEK HELP TODAY, IT’S A WIN FOR US.

Sathvik Mahavadi
Captain



INITIATIVE 4: STEM DOOR TO DOOR

In partnership with FIRST Lego League team #57636- Epic 8

During the pre-season summertime, we collaborated with our sister FLL team, going door to door around our community. We handed out FIRST program flyers to families and spread information about FTC and FLL. We gave our contact information, and many eager families with children of all ages contacted us regarding finding a team. We even found a new team member as a part of this program, while successfully bringing many into the FIRST programs that we cherish.

200+ Doors Knocked - 40+ Callbacks





INITIATIVE 5: INSPIRE HER FUTURE

In partnership with Girls in FIRST.



Another problem we noticed, particularly on most FTC teams in our area, is that females often hold outreach and non-technical roles while programming, construction and design are mostly male-dominated. This is reflected on our own team as well- with only one female in all three technical departments combined.



After digging deeper, we realized that there was an underlying misconception that some roles are “for boys” and others are “girl jobs.” In an attempt to combat this, and inspire a future generation of girls entering FTC to break the stereotype, we began this program.



We hosted girls from different teams in our league- who we saw as shining examples of trailblazing in technical departments- for 10 minute interviews where they can reflect on their journey, experience, and share advice to other girls who want to pursue programming, construction, or design but are apprehensive about it. Our program was promoted on a national scale by Girls in First- another female empowerment initiative with international reach. All episodes are on our Instagram page.



INITIATIVE 6: FULL MENTORSHIP



Over half of our current team has entered FTC after graduating from the FLL program. Thus, the FIRST pathway and the FLL → FTC transition is very important to us. We have been actively mentoring FLL team #57636- Epic 8, for the last three years. During this span, the team has won many awards, including two regional championships and two nationals invitations. We consider them “Cre8 Jr.” and regularly give the team demonstrations of what we do in FTC. As a result, a majority Epic 8 intends on joining us post FLL graduation. We are so proud of Epic 8!





INITIATIVE 7: INTERNSHIP PROGRAM

In partnership with our Parent Booster Program: "Cre8 Fam."

We are proud to be one of the first teams ever in our league to have a formal and fully operational Internship Program. As a part of our commitment to ensuring the long-term sustainability of team #24438, this program aims to give a selected group of 6th and 7th graders the opportunity to observe, and understand FTC before formally joining a team. This ensures that kids who fully join the team know and are enthusiastic about what they are signing up for.

After the application window for the program closed in September, we interviewed all the interested applicants hoping to find 4 candidates that were best fit for what the program offered. We then contacted the parents of the selected candidates and sent them an informational packet about what we offer through the Internship.

Interns began by going through orientation where all 4 department leads, as well as team leadership gave overviews of what their department does, and what each intern will take away at the end of the term. Then, interns were asked to select the fields they seemed most interested in, and they were to spend the most time in that department. Nevertheless, all interns experienced all parts of FTC.

The program had a dedicated team member, Ananyaa, who served as its coordinator ensuring all four interns were meeting their expectations and the program was serving them well.

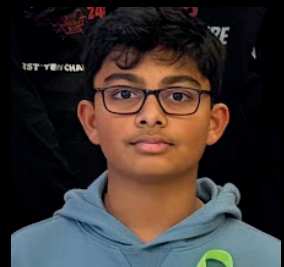
All 4 interns intend on becoming full-time members of Cre8 next season and we cannot wait to have them join the squad and begin to mentor the next batch of interns. We are so glad that this experiment turned out successfully and hope to continue this program doing our part to keep our team's future strong.

ANAGHA MANCHIKANTI
Design, Outreach

"I was able to make so many new friends and experiment with marketing and CAD. I can't wait for FTC!"

ADVAITH SAMA
Programming

"I worked with Neil and Nilabh to explore the basics of Android Studio, Java and OnBot. This is like FLL but next level."



AADYA BOPANA
Management and Leadership

"While shadowing Sathvik and Parjanya I looked into the strategy of leading a successful team. FTC is really exciting."

BENISRI SAI AKASH GUNTUR
Construction, Design

"I explored all the departments and found a great interest in CAD and constructing, engineering and mechanics. I really hope to join Cre8 as a full time member next season."



FIRST TECH CHALLENGE EXPOSITIONS & DEMONSTRATIONS

Throughout the season, Cre8 the Future appeared at many public events and locations, demonstrating our robot and spreading information about FIRST. Here are our highlight events....

Skyzone Spirit Night

During the pre-season we partnered with Skyzone and sister FTC team #25957 - Quantum Igniters to host an expo at Skyzone Grimes. We had two robots running simultaneously and let visitors drive them while learning about FTC. We were also visited by a couple local lawmakers!



Future City:

We continued our reach representing our primary sponsor, Terracon at Future City- a state-wide STEM initiative for middle schoolers at Iowa State University. We showed kids our CAD, code and the robot. We gave them information on the FIRST program and encouraged them to give it a try.



Iowa Cubs Game:

In the summer, we displayed our robot at an Iowa Cubs game, talking to visitors about FTC. We were joined by our sister FLL and FTC teams from Pathfinders Robotics.



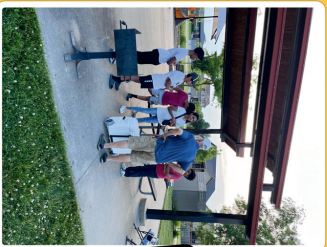
UP NEXT FOR US:

- Science Center of Iowa FTC Demo
- FutureFocused at Shuler Elementary
- Political Advocacy Day
- Z'Mariks Spirit Night
- New InspireHerFuture Episodes
- **FTC State? :)**

CRE8 SEASON TIMELINE

Cre8 Cares

STEM Door to door



CRE8 Internship program Launched!



Food Drive in Association with Food Bank of Iowa. Raised 64.5 lbs.

Outreach

Fund Raisers at Public Parks. Sold Baked goods and Ice Pops...

FLL Mentorship/ Team Epic (#57636) for the past 3 years.



hosted a fundraiser in collaboration with team 25957, Quantum Igniters, raised \$200

Casey's sponsored \$300

Build

Build and Test the Chasis

created our first robot, MAXIMA

Using the updated design, we attempted to build a robot in 12 hours.

We started to develop RAMPager



Design

Designed a generic Chassis and built odometry framework

Started the season with MAXIMA, a spin off of GOBILDDAs starter bot



Double Wheel Intake Designed

Expand on double wheel outage
Fill the gaps with the kick mechanism
inconsistent outtake

Cobra outtake design initiated



Preseason

Meet 1

Meet 2

Meet 3

CRE8 SEASON TIMELINE

Cre8 Cares



Waterford Elementary FIRST and Robotics Outr.



Cre8 Strong was our next initiative to raise awareness for mental health.

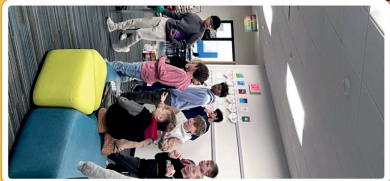


Inspire her future in partnership with Girls in First Launched!

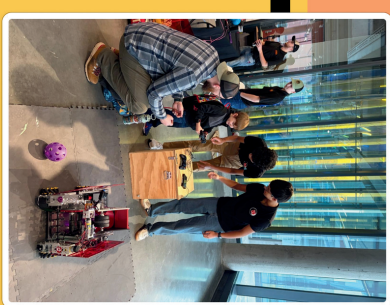
Future City outreach at Iowa State University

Outreach

MMF sponsored \$300

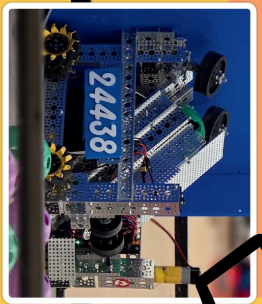


Terracon sponsored \$2,500



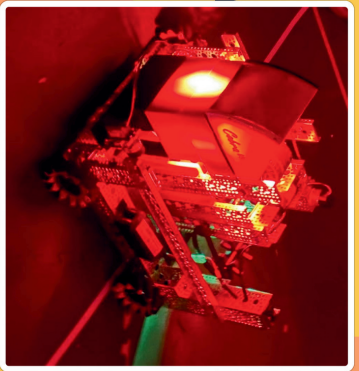
Build

Continued altering the RAMPager's kick system



Took Rampager-2 with alterations to Meet 4 as Cobra was not completely built

Kept optimizing the models of cobra, all the way to V5. Cobra V5 was the optimal outtake we wanted.



COBRA Debut at meet 5

Consistency, Consistency, Consistency!...

update,, test analyze

CAITLIN 22 All Set for League Tournament

Design

Meet 4

Meet 4

Meet 5

League Tournament

OUR SQUAD



Sathvik M.

Captain
Drive Team



Shreshta A.

Vice-Captain



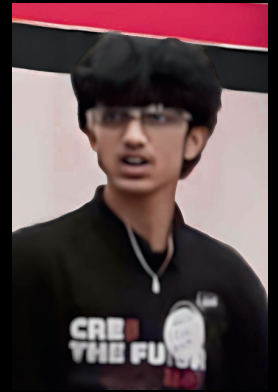
Neil N.

Head of Design
CAD Lead
Drive Team



Keerthy V.

Head of Construction



Parjanya M.

Cre8Cares Director
Head of Engineering
Drive Team
2026 Dean's List Semifinalist



Ananyaa S.

Internship Coordinator
Construction Team



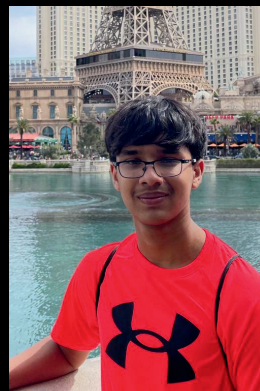
Hiranmayi P.

Creative Design
Media



Sastha K.

Head of Outreach



Nilabh B.

Head of Programming
Drive Team
2026 Dean's List Semifinalist



Coach Pavan M.



Coach Anil S.



Pathfinders Robotics

