1. Hello. We’re Overclocked, a team from Florence, Massachusetts. We’re a community based team of 7 people, and this is our rookie year.

For us Gracious Professionalism is helping others without wanting anything in exchange.

2. Personally my name is Lucas and i helped with Outreach.
While at Florence night out we got Isaiah to join.
For finances we got 2 sponsors and a rookie grant.
I also was the one who made the Team Scoring element

3. Hi, I'm Mya. I worked on outreach, graphic design, and some building, I designed our team logo and social media. We used instagram for outreach and our goal was 150 followers, but we now have over 2 hundred. Posts that related to the robot performed best, but we got a good response on the intros to team members. Our account also had some videos that sparked conversations with other teams and allowed Zach to offer advice.

PREV: Lucas Mya NEXT: Alex

14. Thank you for your time, do you have any questions?

PREV: Zach Mya

4. My name is Alex, and I will talk about the design process we used for the robot, and the designs we got out of it.
For the chassis, we used an “H” shape because it has space in the front for a manipulator, and it has space in the back for wires. We built it out of 20/40, because it allowed us to make our chassis more customizable.

5. For the arm, we used a linear slide because it was simpler compared to the alternatives we thought of. In order to find the required number of segments and the length of the segments, I made a Desmos graph and then wrote a program with p5.js.

6. For our hand we through 3 different versions. Our current version has 2 fingers attached to a slider. The fingers flip out and catch the cone before pulling it up. I used a Desmos graph to finds the lengths of the linkage that connect the servo to the slider.

7. Finally is the cow catcher. The cow catcher passively aligns cones so that they can get picked up. We created flippers to keep the cone from catching on the plywood. However the flippers liked to bind on the cone, so we replaced it with bristles that are able to bend over ground junctions and touch the bottom of the cone.

Next, Zach will tell you how we programmed autonomous.

8. Hi, I'm Zach. I worked on outreach and programming. When I started making our autonomous program, we decided we wanted to work on parking because of the point value and the reliability.

We used computer vision to determine which zone to go to. Our team signal sleeve uses AprilTags. AprilTags are similar to QR codes and are also used in various industries for identifying things. Since there are AprilTag libraries readily available we decided to use them. When we started coding, we created a program for zone 1, and based the rest from there.

We thought they worked so well that we shared them with the Aquabots, another FTC team who will be here tomorrow. Now Isaiah is going to talk to you about the Servo code.

Prev: Alex Zach Next: Isaiah

13. We performed a SWOT analysis and we set our goals for this season and we while we did not hit every goal we gained valuable information that we will apply in upcoming seasons. In short, we really enjoyed our rookie year as an FTC team and we can't wait to implement what we learned!

Prev: Jacob Zach Next: Mya

9. Hi, I’m Isaiah, and I worked on programming global positioning, April Tags, and the gripper. We coded the gripper using a Servo, and told it to go to a certain position when a button was press. The servo would then, by rotating, push a 3d printed part to make the gripper close. When the servo turned again, it would release it, making the gripper open.

10. Hi, I'm Max, and I worked on creating various control options to make it easier to drive our robot, I also helped to add acceleration, precision mode, and global positioning. We use global positioning to be able to drive easier. Global positioning uses an imu to move our robot relative to us instead of relative to the robot. For example, pressing forward moves the robot away from us no matter what direction the robot is facing.

We ran into a similar issue with our global positioning code as we did with our acceleration code, where it was helpful for some drivers but added difficulty for others. We added a toggle for global positioning as well so that our robot was customizable to anyone's driving style.

11. Hi, I'm Jacob, and I worked on programming. I worked closely with Max here as we both did large contributions towards making our robot easier to control. I worked on acceleration mode trying to make better iterations before the competition. Eventually, we decided to remove the acceleration feature as we thought it to be problematic, making it more difficult to be precise.

I also worked on a precision mode, which slows down our robot depending on how much our left trigger is pressed down. This allows for more precision when picking up and scoring cones.

12. We used Monday.com to stay on track. We entered all our tasks into the site and labeled them based on the amount of work we had to do to accomplish them. At the beginning of our meetings, we would go over progress and adjust dates of our tasks.

Our team utilized Discord for communication, allowing us to stay all on the same page.