Common Rookie Mistakes

Robot Dimensions (<RG04>)

The robot dimensions are 18”x18”x18”. To test your robot, the Hardware inspector will place your robot inside a box that is 18”x18”x18”. Your robot must fit entirely inside the box while powered down, and not place any pressure on the sides. This restriction applies, screw heads, zip ties, and parts of the robot which may not be 18” wide themselves, but are offset by another part of the robot preventing the entire structure from fitting in the box and having the edges of the box set completely on the table. The may extend and change to different sizes once the round starts.

Power Switch Placement (<RG05>)

As described in Rule RG05, in the FTC Game Rules, the power switch must be easily accessible. This only means to a human operator, not other robots. It is important, when placing the power switch, the location is protected enough to not become toggled in autonomous nor regular gameplay. Robots bump into one another and game elements during routine play. The referee will not reinstate power to a robot that is accidentally bumped off, preventing your team from participating in active play. Keep your power switch accessible, but move it to a location where it is unlikely to be contacted during game play.

The Engineering Notebook (Game Manual Section 4)

Not only is your engineering notebook your chance to show the judges everything you won’t have time to say during your interview, it is also a living documentation of your team’s thoughts, ideas, and progress for the season. The first purpose of the engineering notebook is to help your team through the season. You should record all your ideas, even if they are later discarded. Record ideas discussed at team meetings, whether they deal with fundraising, community outreach, programming, or robot design, they all need to be included. As new struggles come up, see if you may have already thought of an answer by utilizing your notebook. Mark important concepts you don’t want to forget. This is your team’s written record. At the end of the season, look back over your notebook so you can see all you have gained and accomplished this year and begin planning for next season. A good thing to aim for is: if you sent your engineering notebook to a different group of students they should be able to recreate your entire robot from just reading your notebook. That is how detailed it should be.

Scouting (Game Manual Section 3.14)

Scouting doesn’t need to be all consuming during your first tournament, but it is an important part of the FTC experience that should not be overlooked. Even if you are fairly sure your team won’t be participating in the finals, scouting the other teams and evaluating how they and their robot would complement your team and robot is an important learning experience. Practice making meaningful notes. Enhance future alliance possibilities by getting to know other teams in your area; where they meet, what community outreach they do, and what unique attributes their robot or play strategy incorporates that you may like to adapt in the future.
Keep It Simple!

Cool designs and neat features are all a lot of fun. It is important to remember the game only last 2 minutes and 30 seconds (30 second Autonomous period 2 minute driver controlled with the last 30 seconds as the “end game” where special ways to score points open up.) With this time constraint, it’s in the best interest of all teams to keep the design simple and easy to repair in between rounds. It's better to have a robot that does 2 things well and reliably every round then to have a robot that can do everything but only sometimes. Do not be afraid to abandon an idea that does not work for your robot when it becomes too complex or unreliable.

Practice, Practice, Practice!

At the competition your robot drive team will consist of a coach and up to two drivers. To play your best game possible all three of these individuals need to work as one through your robot. Each driver needs to know not only their controls and the game, but how to communicate with the other driver and trust and respond to their coach. The coach needs is the eyes of the game. While the drivers focus on robot manipulation the coach watches the 3 other bots on the field, the time clock, and the scoring elements. The coach needs to be able to direct the drivers from one task to the next, whether they are scoring, defending, or moving into the endgame. It all sounds intuitive, but practice, with or without a robot, is the only way this team will be able to communicate effectively in the noise and pressure of the tournament arena.

Reach Out To Your Community

If this is your rookie year, there is a good chance your team was funded with grants and other than finding a coach and mentor; you were able to dedicate your energy thus far to working exclusively on your team dynamics and your robot. Veteran teams know that you also need your local community to be successful. Look for opportunities to meet with businesses and organizations that have an interest in engineering, robotics, programming, or other science or technology concepts. Most manufacturers use robotics. Many industries depend on basic engineering knowledge for non-engineering jobs. Build local relationships now, so when you need funds, a mentor, space, or anything else; your relationship is already established.

Reach Out To Other Teams

Talk to the other teams. When you learn who your ally will be for a given match, make sure you talk to them about their robot and game strategy. Plan together where robots will be placed during autonomous mode. Discuss your individual strengths and come up with a strategy to work together during your alliance round. The coaches should be ready to talk together and direct their drivers into a mutually beneficial strategy.

Don’t let the conversation stop at the arena; get to know some of the other teams as well. Yes, this can be part of your scouting, but it can make your tournament experience better. You already have something in common having built a robot.

Have Fun

While this is a competition and you want to score as many points as possible, you won't always do everything perfectly and or get the top awards at every meet. The best tip for rookie teams is to remember to stay friends and be positive. Other FIRST teams will help out teams more frequently when the teams are actually having a good time no matter what the outcome!