

Section 2: Starting a FIRST Robotics Team

By Team 1718 – The Fighting Pi
www.fightingpi.org

Starting a FIRST robotics team can be a daunting task. Everything from build location and timing, to team members and funding needs to be organized. Funding is a topic that requires quite a bit discussion: it is discussed in a separate section own. This section will focus on the other aspects of starting a team.

APPLYING TO BE A ROOKIE TEAM

FIRST has a fairly well laid out application process, documented at:

<http://www.usfirst.org/roboticsprograms/frc/start-an-frc-team>

The process can be as easy as 1, 2, 3...

1. Register the head mentor information at FIRST's online Team Information Management System (TIMS). This will allow a new team to receive a temporary team number and receive official FIRST emails.

The official TIMS website is:

<https://my.usfirst.org/frc/tims/>

At this point, teams haven't committed to being in FIRST for the next season: that doesn't happen until the team registers by officially paying the registration fee and then selects competitions in which to compete .

2. A rookie team should also contact their local FIRST organization. In Michigan, that will be First-In-Michigan (FIM). FIM is trying to support and foster growth for new teams in the state. It's likely that they can help new teams financially. FIM also has contacts for all the teams in the state. Those current teams are always ready to help new teams – don't hesitate to contact them directly and ask questions! FIM can be found at the following web address:

<http://www.firstinmichigan.org/>

3. Spend some time on the usfirst.org website reading about what it takes to start a team. Numerous guides (like this one) are available to make it easier to start teams. FIRST has a number of informational pamphlets to help a new team as well.

Finally, if there are questions that remained unanswered, FIRST has a direct line devoted to helping teams. When a team contacts FIM or FIRST they should be sure to include their 4 digit team number and team name (if either are available). This

number is assigned by FIRST once a rookie team has completed their application process.

- First email: frcteams@usfirst.org
- First Phone: 1-800-871-8326 – dial 0 after connecting.

BUILD LOCATION

After applying through the TIMs system, the team should secure a build location. Ideally the build location should be located centrally if the team is located in a large school district. In addition, most FIRST teams work weekends and after-school hours. Wherever a team builds, some agreement needs to be in place to allow the students access to the build area late into the evening and throughout the weekend.

Many teams choose to build at their school. Building at the school helps keep the faculty and administration of the school involved. Of course, many schools require some member of the faculty to be on hand when students are working. Work closely with your school to minimize snags that can appear when they are least wanted. Review the school's rules about team or club meetings when school has been canceled. There are no make-up days in FIRST, and a snow day or a day with a power outage can put an even bigger time crunch on a team. Have a back up plan in place for those types of events.



Having a location to drive the robot will be a tremendous help to the team. A large area isn't needed: a quarter size field of 25' x 15' will do perfectly. Keep in mind, though, that many games require elevating robot elements or game pieces well above a normal 8' ceiling height. In addition, make sure your practice area has short pile carpet! Robots perform much, much differently on carpet that they do on tile or cement floors. Many teams have practiced on a tile floor only to later find out that their robot is unable to turn on carpet.

Whatever build location is chosen, it will need robust power outlets and a good internet connection. In addition, it's a good idea to have tiled floors that won't retain metal shavings. A whiteboard is almost a necessity for brainstorming, and adequate seating for the team is a definite requirement.

COMMUNICATION

Staying in touch with team members is a constant challenge. Some may have email, some may use cell phones, and some may have answering machines at home. A regularly updated team website can help tremendously in this regard, as nearly

all team members will likely have internet access. Mentors can also consider using a messaging system like Wigigio:

<http://www.wigigio.com>

Wigigio centralizes text messaging, email messaging, and phone messaging to make it much easier to communicate with large groups of people.

Another successful tactic is to utilize a phone-tree. Depending on how the team is structured, each team leader or mentor can be given the responsibility of notifying certain people.

A contact-list should be sent out to team members as soon as possible in the season. The list should include contact information of not only the students, but mentors and parents as well, in case of an emergency. The list should also include addresses, email, and phone numbers. Verify with the members that it is acceptable if you send their information to other team members. A subtle reminder of acceptable phone practices and hours can be helpful as well. The list can also include notations of members who have their own transportation. This can help when students don't have rides and need to arrange one to arrive at team meetings.

LIABILITY AND PERMISSION SLIPS

Inevitably, the question of liability will arise. Consult with your school and insure that your team is covered by their liability policies. After all, power tools are involved in this sport. In addition, teams need to make sure in advance that any documentation required by the build site is completed. This includes, but is not limited to, permission slips for working in the build area, emergency medical information, allergy information and the like.

Later in the season, mentors will need to worry about day trip permission slips, overnight permission slips, transportation permission slips (especially if the team carools in personal vehicles), and hold-harmless sections designed to protect the mentors from liability.

PURCHASING

FIRST teams tend to buy a lot of small items. The team should keep receipts and track the budget throughout the season. In addition, a purchasing process should be created so team members can submit requests to purchase items.



If the team works through a school, they likely have their own purchasing process in place. Teams work fairly odd hours and time is of the absolute essence during build season. A system should be created that will allow the team to purchase things in the evenings and the weekends, and do so quickly. Some options are a team credit

card or a school credit card that is held by one person. Of course this means that person must always be available.

In addition, the team should understand the reimbursement policies of the school or their sponsors. Are receipts needed? Do they need to be mailed or faxed? Is a copy of a credit card bill required for online purchases? It's helpful to have a school or sponsor set up an open PO that the team can draw against. This allows purchases without a credit card or for other means of payment.

SAFETY



Safety overrides all other concerns when participating in FIRST. Safety glasses with the correct ANSI specification are absolutely required at the competition venues when on the field and in the pits. It's a good idea to require them in your build room at all times.

Safety glasses also tend to be misplaced fairly often. Putting a rack on the wall where they can be individually stored and asking the members to put their names on the glasses helps to keep track of them and also to keep costs down: safety glasses can get expensive in bulk!



The team also might want to consider hearing protection if loud tools will be used. Circular saws, miter saws, bench grinders and angle grinders can all create unsafe amounts of noise.

Another useful tool for team mentors is a versatility matrix. While the name is fancy, the purpose is not: it is a tracking system to monitor who has been trained on what equipment in the build room. A sample versatility matrix can be found on the Fighting Pi's download page (if you downloaded the complete Rookie Packet, the matrix will be located near the end of the document).

MENTORS

While the art of mentoring is discussed in another section, it's helpful to note that usually, more is better. When mentors have to divide their time between more than a couple members they can quickly become overwhelmed. Team 1718 has a mentor to student ratio of about 1:6 at most meetings, and this seems to work fairly well.

RECRUITING TEAM MEMBERS

Recruiting is as simple as generating excitement about the team. FIRST has a host of videos on YouTube with stars like Morgan Freeman that can get new members interested. In addition, there are many existing teams that would be more than happy to do demonstrations with functioning robots – contact FIM to find local contact information.

Demonstrations can be performed during lunch periods, at open houses, during pep rallies, or even during sporting events. Any time the student body is together is an excellent time to get a working robot out and generate interest in the team.

It's good practice to require an application form to join the team. Include such things as expected conduct, required attendance numbers, necessary GPA, and other such items up front so the students know what type of commitment they are making. It's also a good idea to have handouts detailing important dates during the season as well as the meeting schedule so parents can see the commitment they'll have to make as well.

SETTING GOALS AND TEAM PROGRESS

A new team should strive to continuously improve. Take notes about other teams at competitions. Ask questions of other teams' mentors. Most importantly, create a set of goals for each week of the season. Have regular 'management' meetings that include student captains on the team. In addition, whenever something needs to be done, make sure it is assigned to someone. If it isn't, the likelihood is it will never be completed.

Share these goals with the entire team regularly, and take their input as well on what needs to change. Communication about the team in both directions will help head off problems before they grow into emotional events.