

# The Green Team - 885

## Team Organization and Governance

This paper outlines the organization and governance for the Green Team. All student team members, parents, and adult mentors should be familiar with this document.

### Basic Team Organization

During the build season, the team will be organized into "squads" oriented to specific tasks or subassemblies on the bot. The missions for the squads will depend on the requirements for this year's game, but the following squads will be required most likely:

- Chassis and Drive Train
- Software and Programming,
- Electrical and Wiring,
- Bumpers (more important than you might think!)
- T-shirts and Event Coordination,
- Travel (at the end of the build season)
- Practice Playing Field (start/middle of build season)
- Special squads, (depends on the game )

Each squad will have an adult squad leader and hopefully a student squad leader. Meeting this goal depends on our membership. Generally squad leaders will be people who have shown a steady interest in the team or are otherwise qualified by knowledge or experience. Squad leaders will have to agree to attend **most** of the work sessions throughout the build season.

**Team members will be assigned to a particular squad or squads; this is very important.** We hope to allow people choose their squad based on their interests.

People should plan to work with their assigned squad for some time. However, if people want to be on a different squad after a while, or if one squad gets finished with its work, then people can move to a different squad. The Engineering Coordinators will keep track of squad membership and will manage assignments.

What will **not** be acceptable is for people to hop from one squad to another on impulse. That is the enemy of thoughtful problem solving and continuity of effort. Stable squads will help us develop well thought-out solutions.

**Newcomers to a squad are welcome but they must respect the previous efforts of their squad.**

Newcomers may of course make suggestions, but should not demand that the squad reverse several weeks of effort because of their bright idea. Squads should not have to review weeks of decision making for the benefit of newcomers. Occasional participants should not expect to have the same decision making authority as regular attendees.

People who do not want to be on specific squads or who cannot attend regularly will be assigned to making parts, assembly, safety implementation, or other general tasks. People not on a squad will have less input on decisions than regular squad members. There may be roving adult mentors, but they must respect the on-going work and direction of the squads in offering their suggestions.

Squads will have a good deal of autonomy around their assigned task. For instance, the Chassis and Drive squad will have a pretty free hand to design their assembly within the overall configuration and weight budget of the agreed-on-design.

## Assigned Mentor

Each student member must have an assigned mentor who will review your activities at the end of each work session. Normally this will be the adult squad leader of your squad.

## Decision Making

Major decisions are reached a regular meeting which occurs after lunch on Saturdays, open to all team members. Different squads present their ideas, invite comments, and a decision on how to proceed is usually reached by consensus, or sometimes by a show of hands.

If consensus is not forthcoming the matter will be resolved by the squad leaders and/or the Board.

## The Agreed-on Design

Very early in the process there must be an "agreed-on-design." This is the design that all squads are cooperating to make at any given moment.

In the beginning this design will be very conceptual without much detail. The design will become more detailed and specific as work is done. It will also change over time.

The senior adult mentors will determine what constitutes the agreed-on-design at any given moment based on the apparent will of the weekly meeting. It will include as a minimum:

- A conceptual idea of how the bot will perform the tasks required to play the game. (This has to be based on an overall strategy for the game.)
- An identification of the principal subassemblies comprising the bot. (These will generally be the basis of forming the squads.)
- A rough idea of the physical location on the bot of the principal subassemblies.
- A "weight budget" for the various subassemblies.

The current agreed-on design will be available in a notebook or on a bulletin board. All squads are expected to use the agreed-on-design as a reference for their work.

If a squad finds that its design is deviating from the agreed design in a way that will affect the work of other squads, it must seek guidance from the Engineering Coordinators. **This is very important.**

## Design Process and Design Tools

Hopefully design efforts within a squad will be the result of collaboration between all interested squad members. Decisions within a squad should be by consensus if possible. The emphasis will **always** be on teamwork, not individual action.

The first design efforts will be brainstorming. Team members will be encouraged to advance ideas on how to solve the problem by working in small temporary groups. At several points there will be a general "show and tell" where different ideas can be presented, usually by a spokesman for the working group. The design tools for this initial effort will generally be pencil and paper, cardboard, wood, although it may be possible to use computer drawing tools for some elements, even at the beginning.

As squads are assigned and begin to meet, the concepts will become more definite and the drawing tools more precise. We have the use of Sketch-up, AutoCAD, Solidworks, and Inventor to help with modeling; paper/pencil, cardboard, and wood will continue to play a role. It is not always necessary to use the same modeling tool for each part of the machine.

The overall goal is to **first** generate designs, **then** generate exact part drawings, **then** make parts. Trial and error part making will be discouraged.

The dream solution would be to draw up every part of the bot using Solidworks or Inventor within the first two weeks. However, it is unlikely that we will be able to achieve this goal. Solidworks and Inventor are difficult tools, and only a few team members know how to use them at all. There will be too many decisions for two or three people to make alone. Of necessity some variety of design tools will be used, including pencil and paper. Last year we also used cardboard and wood mockups very effectively.

Often we build a functioning "mule" to test concepts. A mule is a bot that has functionality but may not be very pretty.

We hope and expect to have a functioning chassis after the first two weeks. This chassis will be loaded to the full competition weight and tested extensively to find and eliminate problems.

## Parts Control, Supplies, Tools

The last half hour of each worksession is cleanup.

On Fridays and Saturdays all tools should be put away, but work in progress and materials in use may be left on the workbenches. Basic sweep-up must be done.

On Sundays all tools, materials, and supplies must be put away. A thorough cleaning around the work areas and in the classroom is required. Major assemblies, such as the bot itself may be left on worktables.

If you don't know for sure where an item should go put it on the "homeless" table. Tools and supplies that are put in the wrong place are effectively lost.

## The Drive Team and Other Special Teams

Refer to the document "Earning a Place on the Team."

## Work Sessions

Generally we will work on Friday evenings, all day Saturdays, and Sunday afternoons. Exact times will be announced.

It will not be possible for every team member to be busy and productive every moment. We try to plan the work so that as many people as possible can be useful at every moment, but there will be delays, missing materials, unexpected glitches. Please accept this, and try to use any "down time" to better understand the rules, help others, observe what experienced team members are doing, etc. We will also have a number of special projects for those temporarily without a job.

## Safety Programs

Safety must be a major concern of all participants. Having a good safety program is a condition of the use of the space at VTC; any serious violation of the program will jeopardize our right to use the facilities. This is a matter that VTC takes **very** seriously.

All team members must participate in a safety training before they are allowed to use the machine tools or power tools. All members must read and understand the safety training documents (*Workshop Rules - Team 885* and *Basic Machine Shop Safety, Team 885*) and the *Team 885 Youth Protection Policy*. **This is very important.**

## Communications

Communication with all team members and parents is by Googlegroups. **There are no mailed notices.** Please make sure we have e-mail addresses for everyone in our records.

If we send out a notice that asks for a response **please respond** one way or the other. A "no, we can't make it" can be just as important as "yes, we can.."

If you want to ask a question off-topic, please make a new thread; it is confusing for everyone to jump from topic to topic within the same thread.

Please reply appropriately; **please do not automatically hit "reply" to reply to a message because the message goes to everyone.** Get the e-mail addresses for key members of your squad. Some other key e-mail addresses include:

Amanda Wheeler	<a href="mailto:wheeler.amandam@gmail.com">wheeler.amandam@gmail.com</a>
Dan Hudnut	<a href="mailto:vt.nutshells@gmail.com">vt.nutshells@gmail.com</a>
Thad Blaisdell	<a href="mailto:thadblaisdell@icloud.com">thadblaisdell@icloud.com</a>
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Revised December 31, 2017 (updated contacts).