

# Team 1727 Chairman's Award Entry 2006

**Your Team Number:** 1727

**Team Name, Corporate / University Sponsors:** NASA/Goddard Space Flight Center & Dulaney High School

**Briefly describe the impact of the FIRST program on team participants.** FIRST has had a direct effect on every individual in our club. It brought the team together, teaching us how to work together to accomplish an engineering challenge and deal with all of the stresses included therein. It has also taught us leadership and personnel skills that will help us succeed in future endeavors. Above all it has allowed us to participate in an activity that we enjoy while learning and fostering technical skills that will be applied for the betterment of our community.

**Examples of role model characteristics for other teams to emulate.** Even though we are a rookie team, there are several characteristics for other teams to emulate including our upbeat attitude and willingness to do what needs to be accomplished. The members of our team are willing to do what ever the task at hand requires of them. Also, we have developed an infrastructure ideal for managing a large and intricate club. These characteristics make our club unique and will be the foundations for future successes.

**Describe the impact of the FIRST program on your team and community.** Because of the large scope of the FIRST program, We have had to reach out to our community and our school. Earlier in the year, we held a fundraising dinner which attracted members of the school faculty and local community. We have brought friends, family, and business partners into our project through our communication network which includes our website, email network, and newsletters. We have also attracted the attention of our school and have been featured in the newspaper and morning news.

**Teams innovative methods to spread the FIRST message.** Our team's innovative methods to spread the FIRST message included frequent newsletters, weekly emails, an updated website, a bulletin board, as well as a community dinner. In the future, we plan to spread FIRST's message by sponsoring a FIRST Lego League at the local middle school and hold several other community events which would promote engineering and the FIRST program.

**Describe the strength of your partnership.** This year, the team established partnership with both local and global companies. Our supporters included Raytheon, Select Associates, [REDACTED], and RK&K engineers. By far the most help came from the AAI Corporation which contributed several engineers to help us design and build our robot. They also provided the metalworking capability we so needed and gave us a tour of their facilities.

**Teams communication methods and results.** As a team, we tried to keep everyone informed about the club's status and current events. At the beginning of the season, we sent letters out to local businesses asking for donations and sponsorships. We followed up with several newsletters. We also sent out weekly emails and kept an updated website through out the season. A bulletin board was set up in the school to inform fellow classmates of our progress. We hosted several dinners to inform the community.

**Other matters of interest to the FIRST judges, if any.** At the outset of this year, we attended a workshop/seminar at Capitol College. There, we met several teams including 1719, 888, and 768. Also we received a basic introduction onto concept and design which we applied in the building of several robots for our fundraising dinner. Furthermore, we attended the regional kickoff event.

## Images:



**Essay:** Team 1727 was established in September of 2005. The team immediately created a strong infrastructure and voted to hold elections for the following positions: president, vice-president, secretary, treasurer, and web site manager. We took several meetings to clearly define the roles and responsibilities of the positions and the hierarchy of the club. We further established general club rules as well as team goals. After this was instituted, we held elections for the positions. The leadership then decided to hold leadership meetings every Wednesday morning to keep the club organized and on the same page.

We then made several key changes to our structure to deal with unexpected changes. During the build season, we found the original infrastructure breaking down as many of the different build teams were becoming mixed together. Further confusion was caused by unsteady attendance. The leadership team met, deciding that the team had to create sub teams or committees. We established a shooting device team, a team for the sweeper device and hopper system, a drive train team, programming team, an integration team, an electronics team, and a web site team. We defined the responsibilities of the team and assigned deadlines that each team must meet. We also gave out more leadership roles and assigned a team leader to one person in each of the teams. This person was responsible to reporting to the vice-president as well as informing the leadership team of their current state during the leadership meetings on Wednesday mornings.

Throughout the preseason, our team focused on building trust and cooperation between members through several team building events. Our team has found a particular enjoyment of sports such as Frisbee and dodge ball. Having these times to relax and build friendships allowed our team to grow closer and these friendly relationships proved valuable during the high stress build season.

In early November, we attended a workshop held at Capitol College to familiarize ourselves with local FIRST teams and to introduce our members to the many different parts of building our robot. This proved to be crucial because we had virtually no prior experience with pneumatics, FIRST electric components, drive train design and countless other concepts. From this experience we gained a holistic view of the upcoming build season and our first goodie -a Dremel rotary tool which we had won.

During the preseason, we practiced building many small robots from manufactured kits including two custom designed Vex Kit Robots. This allowed the club as a whole to gain experience of what it was like to build robots and deal with the frustration that would occur. We held a Carrabba's dinner in early December to inform the community as well as the school of the enormous challenge that the club has taken on. The dinner was a huge success and raised well over three thousand dollars with an attendance of over four hundred people. At the dinner, we held demonstrations of the robots we had built and allowed the community members that attended to build their own robots in the limited time we had. During the last few weeks of December, we reviewed footage from previous FIRST events to prepare for this season's challenge. The movies allowed us to discover what a regional and national competition was like, as well as the planning and development that goes into building a robot.

We discovered quite quickly that countless things were required during robot build. Communication was a key factor. Luckily, our team established communication as a priority early on in the preseason. To obtain this difficult goal, we set up a web site, which was frequently updated and was a way to keep the entire team and community informed of our progress. We also established an email system where we sent updates about club meetings and current events as well as updates of the development of our robot. In the school, we took the initiative to build and put up a bulletin board, which then painted in the school colors. On this bulletin board, we included pictures, a schedule, and other information important to the club and the student body of our school. We developed several newsletters covering span of the build season, which then had published. These newsletters were then sent to all of our sponsors and local businesses to keep them updated. Additionally, we made several presentations to members of our school and community including those to a gathering of our county's physics teachers and Olympiad administrators, to the AAI Corporation, and to the attendees of our fundraising dinner.

On January 7, we attended the regional kickoff, also held at Capitol College, to collect our kit of parts. This reunion with the teams we had already met earlier at the Capitol College workshops allowed us to reinforce our relationships. The kickoff event also made our team incredibly excited about the upcoming build season and we did not hesitate to begin work on the task before us.

As a team we understand that we have to maintain relationships with the local community and local companies. This is in part because we are dependent financially for the resources necessary to maintain a FIRST program. But in a larger sense, the cooperation between our program and local companies allows for long term mutual improvement. The AAI Corporation's aid, as well as that of our well connected friends and family, allowed us to incorporate more intricate and finely wrought components into our design. We have seen the local community come to support our program and our participation in US FIRST will also help the community in the future. We hold plans to expand our program to sponsoring Lego League programs at local schools. Moreover, our graduates of the US FIRST program will go on to success in college. Upon graduating, these alumni will join successful engineering ventures and return to help the US FIRST program as sponsors or mentors. Our utmost gratitude goes to all of this year's sponsors for providing what we needed; we would not be where we are without their aid.

All of our preparation culminated in six stressfully exciting weeks of robot build. We spent a large portion of the first several weeks experimenting with pneumatics and later, motor powered launching systems. At the same time, we created the plan for our drive train system and installed the electronic components for our robot. At times the process was frustrating. We encountered the common situation where for every two steps forward we had to take one step back to correct and troubleshoot. But we never lost sight of our goal. In the critical time leading up to our deadline, we came

together and worked remarkably well. Our experience gave rise to a favorite team saying: "If it weren't for the last second, nothing would ever get done." Though we did encounter our share of problems with our schedule, we are all proud of the robot we have made and cannot wait to compete. We welcome the upcoming competitions as our first chances to meet new people, see other ideas in action, and grow as individuals, even more so that we already have as a result of US FIRST.

We, the members of Dulaney Robotics 1727, feel that there is a rising force of energetic, dedicated, and ingenious students at our school; likewise there is a large pool of resources and support within our community. We know that by combining the two this year, and in the years to come, we can take great steps in developing a culture where engineering and science are celebrated and cultivated for the benefit of all. Our gaze is firmly set upon creating success, in the short and long term. And this year is but a beginning; our possibilities are endless so long as we continue to dream big.