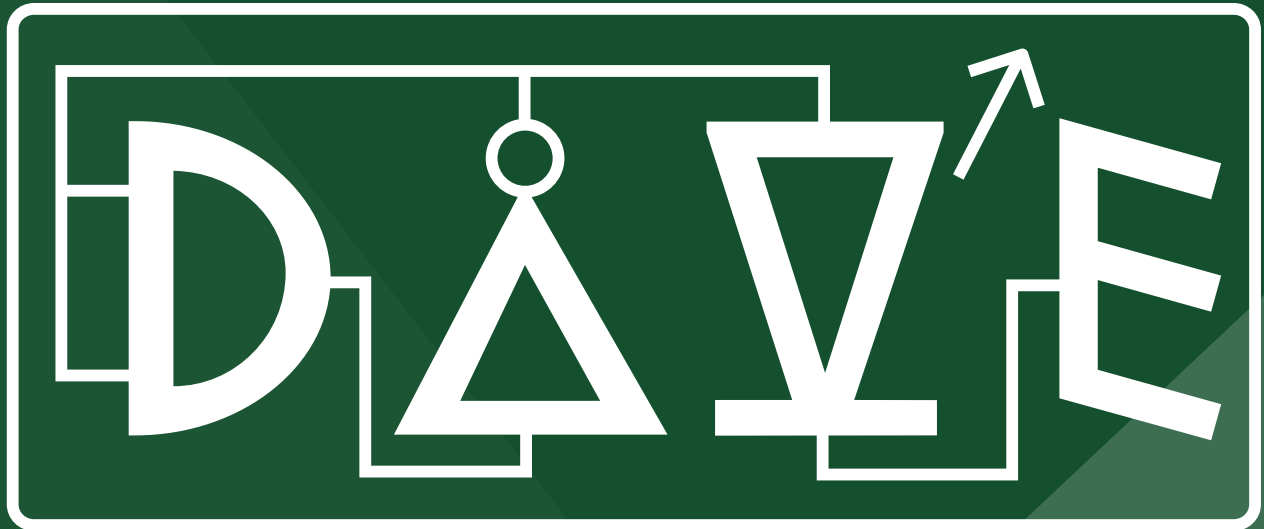


St. Davids Robotics Team 3683 - Team DAVE



Business Plan
2023



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1.0 Executive Summary

1.1 Team Mission Statement

The purpose of our business plan is to outline important aspects of Team DAVE that have led to our success in the past, which we can build upon for further achievement in the future seasons. By evaluating our strengths and weaknesses as a team, we can determine new goals for the upcoming season and continue to work on our weaknesses. By reflecting back on this resource, Team DAVE aims to discover new and exciting ways to promote the areas of science, technology, engineering, arts and mathematics (STEAM) and to stimulate continued interest in the FIRST (For Inspiration and Recognition of Science and Technology) organization. In order to do this, we integrate students into the robotics environment through applying hands-on experiences, which builds skills and strategic analysis. In addition, Team DAVE provides opportunities for public speaking and administrative writing through submissions to various awards.

A fundamental part of Team DAVE is providing circumstances for students to learn from, and work with qualified mentors. Being based in a school community, the team involves our alumni, and students from Waterloo's post-secondary institutions, as mentors for the high school students. Their insight and passion for the areas of STEAM is a source of innovation and inspiration for the team, as well as establishing a space of creativity and collaboration. The team also appreciates that they are in the center of a technology hotspot in order to make connections with a variety of sponsors throughout our city. This community-based approach is something of a 'driving engine' behind the team, one which pushes us forward to new heights each season.



1.2 Team Origins

Established in 2010 and located in Waterloo, ON at St David CSS, Team DAVE is in our thirteenth season in the FIRST Robotics Competition (FRC). Combining students, alumni, and mentors, Team DAVE unites creative minds throughout the school and community. DAVE has upwards of thirty-eight committed students and several dedicated mentors, along with numerous parents who contribute wherever they can. In addition to the increase in strategy, software, and administrative participation, a great accomplishment is an increase in the number of women on our team, which has quadrupled in the last year.

One of our greatest challenges is the large number of students who have graduated or are in their last year of high school and are looking to pursue other areas. Many of these students and their families have been key members of Team DAVE and their graduation creates gaps in the team that is ideally filled by newer students. Therefore, the team enthusiastically works with elementary schools, as well as advertising in the community, to create new interest in the team and establish continuous growth. This, along with mentorship provided by older students to grades 9 - 10, helps ensure the future of the team and its ability to provide students with an introduction to the world of FIRST and the STEAM pathway.

1.3 Organizational Structure

Team DAVE consists of four subteams: build, software, business services, and strategy. These subteams provide detailed learning experiences that develop skills in their respective areas of interest, such as public speaking, essay writing, programming, data management, and engineering. The teams communicate to achieve a common goal while accomplishing great detail in their respective projects. Students aren't limited to subteams and the autonomous system gives students many outlets for improvement.

To ensure funding is used with maximum efficiency, the entire team is involved in budgeting and communicating where resources are most needed. Finance is an example of how all team members participate in all aspects of the team, regardless of their subteam or focus. Students who work on build can also contribute to awards submissions or any other part of the team that interests them, and vice versa. Considering the teams work only one room away from each other there is plenty of collaboration, a valued characteristic of DAVE.

1.4 Relationships

Team DAVE includes students with an array of skills and interests, which combines to approach the FRC challenge from many angles. Students who join the team aren't required to have knowledge of the machines and software used, through mentorship and teamwork, members develop their understanding of STEAM and the FIRST community. Newer students are paired with senior students and mentors to assist them and develop their potential through DAVE. In this system, new students develop the necessary skills to take on more responsibility and senior students gain experience in leadership roles. The mentors of DAVE offer both guidance and insight, often having been part of an FRC team as students themselves. We have the privilege of many of our mentors being just steps away at local post-secondary institutions, creating interest among their classmates for potential mentors for DAVE.



Our sponsors are also a huge part of the team and we pride ourselves in having several returning annually. Team DAVE always looks to extend our connections in the community through participation in local events, which strengthens our relationships with both potential and current sponsors. Additionally, we host an Open House at the beginning of the season and a Sponsor Appreciation BBQ at the end, where people come to interact with the team and stay up to date with current projects and results.



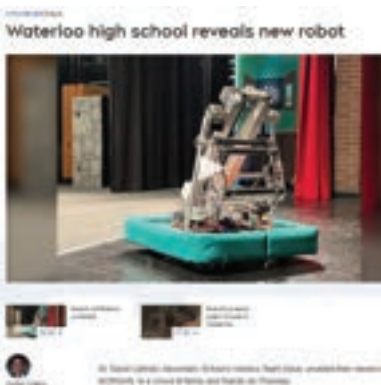
1.5 Deployment of Resources

The connections that we make with supporters are our best resource. We are actively engaged with the community, participating in annual outreach events that are geared toward promoting STEAM and post-secondary education. With each event we partake in, we introduce kids to the best parts of FIRST and show them the possibilities with FRC. Aside from appearances in our community, news outlets like CBC, Rogers TV, CTV News Kitchener and 570 News have featured the team in various broadcasts that are seen nationwide and have been viewed by about 4.3 million Canadians.

To initiate and inspire involvement in FIRST, we believe in promoting STEAM to kids as a way to further FRC. Therefore, we frequently go to our feeder schools to inform students of the possibilities to be found through joining Team DAVE and FIRST. We also reach out to children by hosting a LEGO summer camp which is traditionally held at a local church, for students who are interested in STEAM, however, it has been held remotely for the past few years.



Team DAVE's main objective is to give each member the best possible experience of being on a FIRST team. We encourage everyone to move freely throughout the shop and get involved in any area of interest. Additionally, the mentor-to-student ratio of Team DAVE sees that each student can learn from various sources and find a role that is right for them.



1.6 Future Plans

Team DAVE's future goals center around improving sustainability, and increasing our presence in our community. DAVE has set both short-term and long-term goals for our future ranging over the next five years. Our short-term goals include updating our website, increasing our social media presence and following, and increasing awareness within the school to encourage students to get involved with the team. There are also plans to attend past outreach events, such as the KW Oktoberfest and Curiosity Fair, and visit our family of elementary schools. Through hosting FTC and FLL qualifiers, our LEGO robotics camp, Link days for grade 8's, and more, we hope to expand STEAM and FIRST through the student body.

1.7 Financial Statement

Team DAVE receives financing from a combination of monetary and in-kind sponsors, as well as a team fee. Every build season, a section of the team's resources go to funding supplies and materials for building both our robot and our practice field, which we use for testing code. Another expense comes from additional fees that can come up at any competition including fees for registration, orders for team clothing, team meals or any travel expenses.

1.8 Risk Analysis (SWOT)

Team DAVE has many strengths, with one of our greatest assets being our relationship with our school administration. This gives us a place to work and store our robot, also providing us with more opportunities for events within the school. This relationship also allows us to easily attend outreach events where we represent not only the team but the school, as we are provided with extra resources. DAVE also has a history of consistent sponsors for the past decade, with the majority having been with the team over the course of multiple seasons. This helps the team start each season knowing there is a sense of financial stability, while new sponsors are found to help support the team's costs.

As a founding team of the Waterloo Wellington FIRST Robotics Organization, we demonstrate cooperation within our community by coming together as FIRST teams to create opportunities within our community. This is a strength as it demonstrates not only our ability to work together but also creates chances for the younger generation. Together, we also plan on growing the FLL Qualifier, previously hosted by DAVE, to become a larger event.

One of DAVE's weaknesses is our low social media presence, which is a result of infrequent posts and updates across our various platforms. This lowers the exposure of the team to potential sponsors and future members. This is further enhanced by our outdated website, in both the information provided and appearance. Another weakness is the low exposure students at St. Davids have to the inner workings of Team DAVE which cause a lack of recruitment in less recognized groups within the team. DAVE has an inconsistent flow of students between grades, which results in gaps in the learning experience and knowledge base of the team. COVID has also created a lack of students with first-hand experience due to the inability to meet in person within the past couple of years.

DAVE has many opportunities to expand throughout the community. Prior to this year, community outreach was paused and limited because of the pandemic. However, having a large tech community provides DAVE with sponsorship and outreach opportunities, in addition to local support. Outreach is a vital part of our team's sustainability, providing fundraising and educational opportunities through publicity and participation. Our events, such as FTC and FLL Qualifiers, bring in support from the FIRST community and present an opportunity to enhance our relationships in FIRST.

The greatest threat to DAVE centers around the risk of mentors and students leaving. It's inevitable that our team will experience a constant turnover of members moving on to other opportunities. The problem presented by unexpected turnover is that it's hard to replace or train members to take on their roles due to the gaps created in knowledge and structure. Additionally, if we don't sustain our good community relations and outreach, we will attract fewer sponsors and opportunities.



2.0 About Team DAVE

2.1 Origins

Established in 2010 and located in Waterloo, ON at St David CSS, Team DAVE is in our thirteenth season in the FIRST Robotics Competition (FRC). Thirty-eight students and nineteen mentors make up the DAVE family.

2.2 Awards and Achievements

Achievements

2022 Rapid React

- District Event Finalist - University of Waterloo Event Day 1
- District Event Finalist - Windsor Essex Great Lakes Event Day 2

2020 Infinite Recharge

- District Event Winner – Humber College District

2019 DEEP SPACE sponsored Boring Company

- District Event Winner - Humber District
- District Event Winner - Waterloo District
- District Championship Winner - Ontario District - Technology Division
- District Championship Finalist - FIRST Ontario Provincial Championship
- FIRST Championship - Detroit Carson Division Semi-Finalists

2018 POWER UP

- District Event Winner – Waterloo District

2017 Steamworks

- Tesla Division Champions – World Championships St. Louis
- District Event Finalist – Waterloo District

2016 Stronghold

- Regional Winner – Greater Toronto Central Regional

2015 Recycle Rush

- Regional Finalist - Waterloo Regional
- Regional Finalist - Windsor Essex Great Lakes Regional

2014 Aerial Assist

- Regional Finalist - Waterloo Regional

2011 Logomotion

- Highest Rookie Seed – Waterloo Regional



Awards

2022 Rapid React

Entrepreneurship Award - University of Waterloo
Event Day 1

Innovation in Control Award - Windsor Essex Great
Lakes Event Day 2



2020 Infinite Recharge

Chairman's Award – Humber College District

2019 DEEP SPACE sponsored Boring Company

Quality Award sponsored by Motorola Solutions Foundation - Humber District

Industrial Design Award sponsored by General Motors - Waterloo District

Excellence in Engineering Award sponsored by Delphi - FIRST Ontario Provincial
Championship

2018 POWER UP

Gracious Professionalism Award sponsored by Johnson & Johnson – Waterloo District

Gracious Professionalism Award sponsored by Johnson & Johnson – McMaster District

FIRST Dean's List Semi-Finalist Award (Noah Betik) - Waterloo Regional

2017 Steamworks

Creativity Award sponsored by Xerox – World Championships St. Louis

Industrial Design sponsored by General Motors – Waterloo District

FIRST Dean's List Semi-Finalist Award (Danny Faryna) - Waterloo Regional

2016 Stronghold

Industrial Design Award sponsored by General Motors - Greater Toronto
Central Regional

Industrial Design Award sponsored by General Motors - Waterloo Regional

Woodie Flowers Finalist Award (Dan Delattre) - Waterloo Regional

2015 Recycle Rush

Regional FIRST Dean's List Finalist Award (Samuel Delattre) - Waterloo Regional

Quality Award sponsored by Motorola - Waterloo Regional

Innovation in Control Award sponsored by Rockwell Automation - Windsor
Essex Regional

2014 Aerial Assist

Creativity Award Sponsored by Xerox - Waterloo Regional

Excellence in Engineering Award Sponsored by Delphi – Greater Toronto Regional East

2012 Rebound Rumble

Creativity Award Sponsored by Xerox – Waterloo Regional

2011 Logomotion

Rookie Inspirations Award – Waterloo Regional

2.3 Student Achievements

Our students excel both in and outside of robotics within the school and community. The students also thrive in their studies, consistently making it onto our school's Honour Roll, with an average of 80% - 89.99%, and the High Honour Roll, an average of 90%+. Students win awards in their classes, ranging from academic excellence to contest awards. Our students have taken up leadership roles in the school, involving themselves in school productions as stage managers or directors, and on the school's Student Council.

2.4 Alumni Achievements

Our students still continue to earn outstanding achievements in various interests once they graduate from our school and the team. Alumni often return to mentor the team or simply to visit and give input on ongoing projects. Additionally, many of our alumni have received amazing co-op jobs during their post-secondary education, at companies such as Microsoft, Pebble, Voltera, and more.

2.5 Human Resources

2.5.1 Skills and Attributes of Team Members

Team DAVE prides itself on being a cooperative, open team. We involve many different members with a wide range of skills, interests, and talents, believing this diverse skill set creates a team that views the challenge of building a robot from a variety of angles and allows for multiple ideas to be discussed. Our members are creative, intelligent, and dedicated to the team and each other, making them leaders and motivators in our community. These qualities are shown through the everyday events of our team, where members are given a chance to flourish in the areas in which they excel, while also gaining experience in unfamiliar areas. Many students come to the team with little to no technical knowledge, and throughout their experiences with the team learn valuable skills. One of our most prominent traits is our dedication and love of learning. These two qualities create a team that is constantly improving and growing, senior members are encouraged to take on leadership roles and help teach younger students about STEAM.

2.5.2 Skills and Attributes of Mentors

Team DAVE mentors are fundamental in guiding the students through the FRC experience. They are not only crucial during build season but throughout the entire year, leading the team through CAD modelling, programming, data analysis, and communication skills. Mentors are also great sources of knowledge when it comes to applications for various awards and grants. Importantly, the team's mentors know when to lead, and when they should let their students take control and learn from experience. Mentors willingly assist students with non-robotics-related problems such as schoolwork and university applications. The mentors create strong bonds with students that last throughout their time with Team DAVE.

2.5.3 Staffing Positions

Mentors

Our mentors are divided into two different sections based on their experience. Junior mentors are individuals that are starting their first year on the team, given fewer responsibilities to allow them to adjust to being mentors, and slowly building experience. After they develop experience they are given leadership roles with more responsibility. Senior mentors can also be assigned the title of Lead Mentor, they are the heads of their subteams and are trusted with efficiently running the team. Through this system, our mentors, like the students, are constantly learning how things work every year and improving how the team runs.

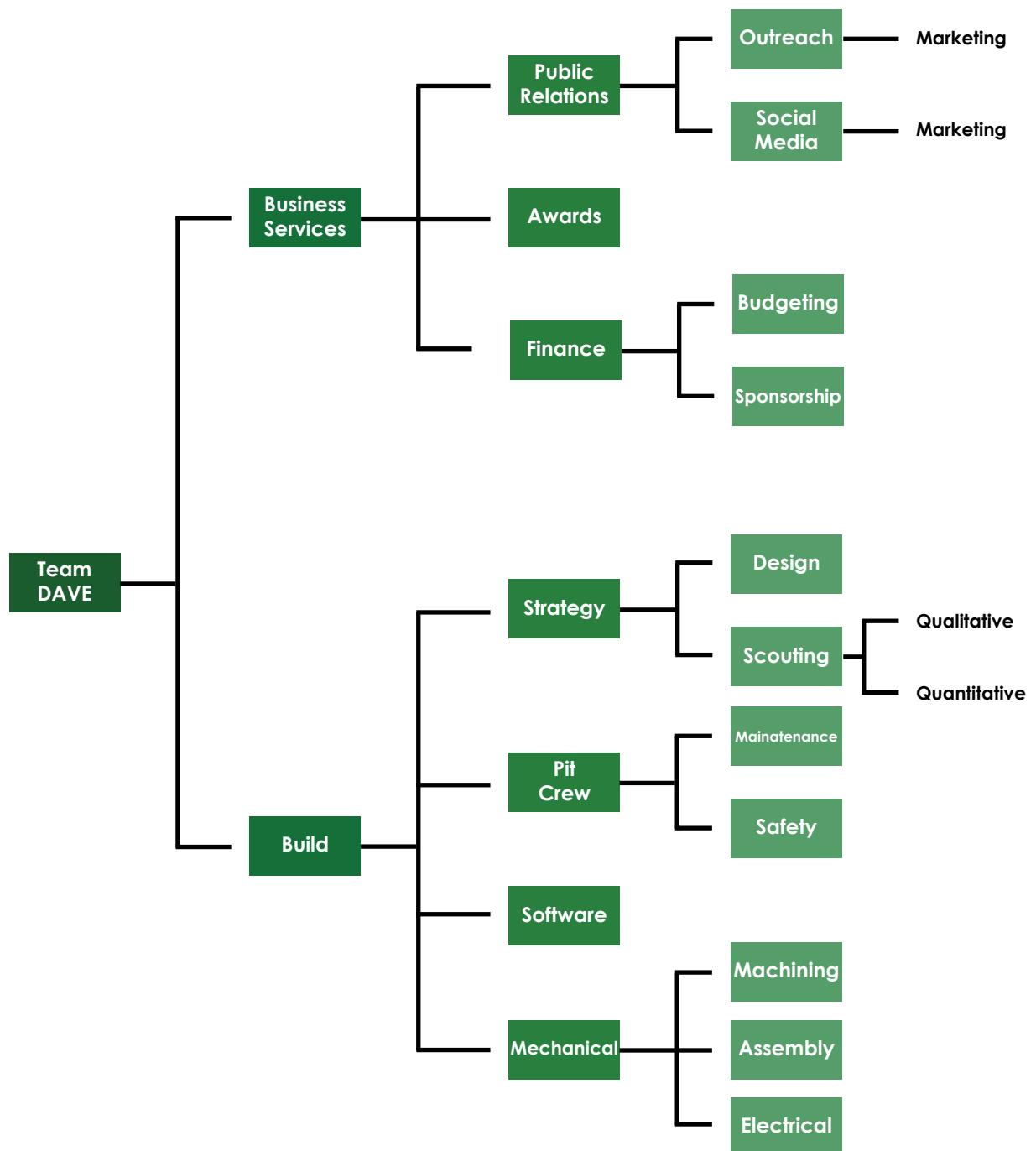
Students

Team DAVE students are not limited to specific sub-teams and are encouraged to develop their skill set while sharing experiences with fellow members. Senior students are students who are well-experienced and serve as role models for newer members and represent the team. For example, students who have been on the team for over a year must nominate a mentor for the Woodie Flowers Finalist Award (WFFA). Through participating in various sub-teams, students develop leadership experiences that they can apply in their everyday lives.

Team 3683 Members

Team DAVE members encompass everyone who is involved with DAVE. This includes the students and mentors, but also extends to our teachers, parents, and others who are dedicated to helping the team. DAVE is incredibly grateful for parents, as parents supply the team with lunch and dinner during build season, drive students to meetings and competitions, and always cheer us on. Teachers help DAVE communicate with the school board and supervise our students, serving as administrators that keep the team running.

2.5.4 Structure



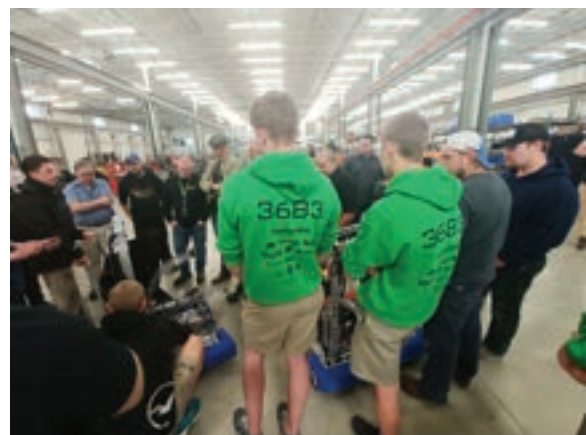
2.6 Role Models

2.6.1 FRC Team

As a fellow FRC team, 1114 has always stood out to us as a team to aspire to be. In competitions, they build high-calibre robots, while inspiring students to help others and go into a future in STEM. They make sure to focus on all aspects of the team, aside from just the robot. As a team, they're working towards greater participation in both the local and FIRST communities. We look up to them as a Hall of Fame team that has done great things around the world. Like 1114, we hope to work towards globalizing our impact through outreach and events. Overall, FRC Team 1114 - Simbotics, has been a great inspiration for our team through everything they do.

2.6.2 Company

Communitech is an innovation hub that houses local tech companies so they can grow and succeed. They assist anyone from startups and global brands, to government agencies, academic institutions, and tech incubators and accelerators. Through everything that they do, Communitech works to promote STEM -- with a heavy focus on technology -- to everyone who comes through their building. Communitech does great things in our community that we aspire to one day do as well. As a company, they work to aid fellow organisations by providing space, money, and advice. While working with the companies, they promote the idea of STEM. We aspire to be like Communitech because their company demonstrates all the ideal characteristics that match FIRST's vision of STEAM.



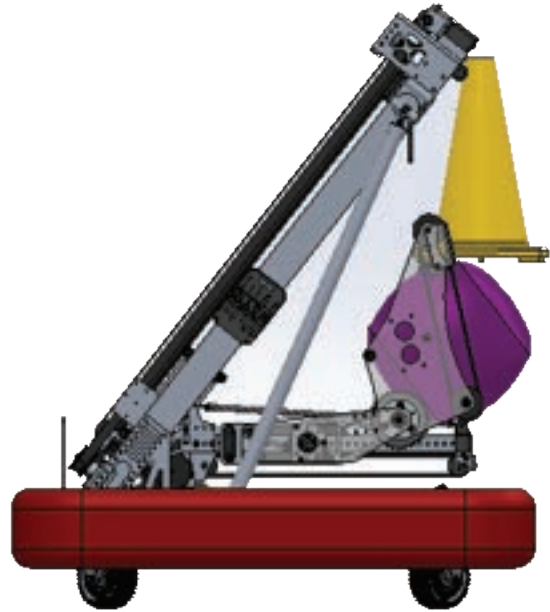


3.0 About Our Robot

3.1 Characteristics

Robot Specs

- Weight: 101 lbs
- Height:
 - Stowed: 37"
 - Extended: 57.5"
- Max Speed: 20 ft/s
- SDS MK4i Swerve Module



Scoring Capabilities

- Score cones and cubes on any node.
- Intake tipped cones and cubes from the ground.
- Dock and Engage on the charge station.

Autonomous Modes

Our current auto can score 2 cones and engage with the charge station, scoring 25 points. There is currently a plan for a 3-game piece autonomous mode for future events, which would score on average 31 points.

3.2 Game Overview

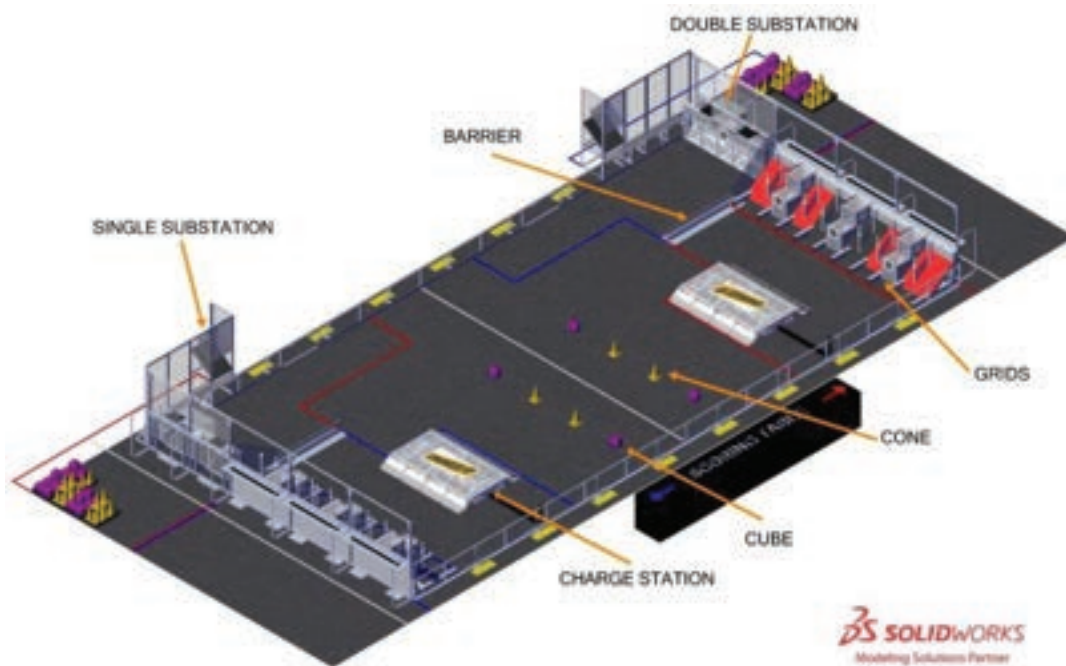
In CHARGED UP presented by Haas, two alliances consisting of three teams compete to bring energy to their community. Teams achieve this by retrieving their game pieces from substations, provided to them by Human Players, and

scoring them onto the grid. In the final moments of each match, alliance robots race to dock and/or engage with their charge station! To be both docked and engaged, a robot must be balanced on the charge station, with no robots touching the station on the side.



Each match begins with a 15-second autonomous period, during which alliance robots operate only on pre-programmed instructions. They can score points by leaving their community, retrieving and scoring game pieces onto the grid, or docking on or engaging with their charge station.

In the final 2 minutes and 15 seconds of the match, drivers control the robots and score points by continuing to retrieve and place game pieces on their grid. In the last 30 seconds of the match, robots attempt to dock and engage with their charge station, doing so successfully will earn additional points.



3.3 Design Process

The design process begins just after the game is released, ensuring every student understands the rules and competition. We fully list out the possible actions a robot can accomplish during competition, where strategy and build determine the design we want to approach the season with. Next, prototypes of each subsystem are made and tested, with the full robot modelled in CAD. Once the prototypes are finished being tested, our parts are sent to our sponsors to get machined and later sent back for the team to assemble. When possible, we get two sets of parts machined so we can have two robots. The first robot is used for practice and training pit crew, the second robot is the official robot used for competition.



4.0 Market Analysis

4.1 Promotion Strategy

Team DAVE has a number of ways in which we promote our name and ideals:

Attending Outreach Events

Team DAVE spreads our name in the community by attending as many outreach events as possible. At these events, we have the opportunity to teach individuals about the FIRST program and the team. Outreach events are used to draw in potential future members and discuss the possibility of starting new robotics teams with anyone interested. DAVE makes sure to bring the past season's robot and wear our team shirts to every event in order to create a memorable image. We showcase our team with pull-up banners featuring pictures and information at events to give attendees more information about the team.

Elementary School Presentations

Team DAVE recognizes that in order to keep the FIRST program running successfully, we need to maintain interest in future generations. To spread awareness to all the potential members, DAVE visits local elementary schools and teaches them about FIRST and the team. This method has been proven successful, as we have seen an increase in students joining the team, including multiple grade eights.

Reveal Video

Starting in 2014, Team DAVE has decided to post an annual robot reveal video on our YouTube channel to promote the season's robot. This showcases the team's hard work throughout the build season and shows off our robot's capabilities to other teams. Since we began this practice, the average view count has increased.



4.1.1 Market

Team DAVE's target audience for social media consists of parents, students, teachers, and people who are interested in STEAM fields. Our social media promotes STEAM and DAVE through the community, assisting with establishing outreach events. Spreading our brand helps with getting tech-based companies more invested in FIRST.

4.1.2 Medium

We employ various methods to promote FIRST and Team DAVE. At FIRST competitions, we wear a unique T-shirt with a recognizable design, which shows our passion for technology. We hand out buttons and bracelets as souvenirs and hang banners that clearly show our name and colour in the bleachers and pits. Our loud and joyful team spirit itself is a form of advertising.



DAVE participates in activities within the school to educate others about FIRST and encourage students to join the team. During Grade 8 events, elementary students tour the high school; we use this opportunity to show off the robot, and how it works, and teach about the community of FIRST. We also demonstrate our robot during school bbq's and other events within the school.

In order to spread our brand and actively communicate with our community, Team DAVE created Twitter and Instagram profiles (@team3683). Through our social media, we post updates on competitions, outreach events, student spotlights, and other news regarding our team. DAVE is a recognizable brand across FRC, and our activity on social media helps maintain our legacy while promoting our team to a global audience.



4.1.3 Message

Through promoting Team DAVE and the ideals of FIRST in activities and district events, we encourage youth to consider a career path in STEAM, and to show the great things that they can do in the future with the knowledge of science and technology. We aim to get companies to support our team, and teachers to start up their own FIRST team at any level of the program.

4.2 Consumer Profile

Team DAVE can connect with various individuals by being active in the local and FIRST communities. Starting in our high school, we present our team by spreading STEAM culture throughout the student body. Members of the team are well known in the school, and students outside the team are always eager to find out what is going on with the build and competitions. Additionally, students in STEAM-related post-secondary programs learn about DAVE through peers who are mentors on the team. Competitions at universities also draw students in and convince them to find out more about FIRST.

Parents and families of students are also highly invested in the team. They will frequently stop by our workshop to see our progress and like to get involved with decision-making. They attend our events and competitions as much as possible, showing their support and cheering us on. Additionally, our team connects to industry professionals through sponsorships and competitions, allowing students to connect with and learn from future employers.

4.2.1 FIRST Identity

Team DAVE has worked to create a lasting impression on the FIRST community. From the start, we emerged as a competitive team, with our distinct DAVE green t-shirts and winning the Rookie Inspiration Award. Since then, DAVE has continued our streak of having a strong FIRST presence. Through Gracious Professionalism, robust robot designs, and memorable t-shirt logos, our team has come to be recognized in the greater FIRST community. In 2020, our community outreach and demonstration of FIRST core values won us the Chairman's award at the Humber College Event, instantly qualifying us for provincials.

Our team has also organised and hosted a qualifying FLL tournament in Waterloo for the past twelve years, which has been attended by a multitude of teams. Outside of competitions, we connect to other FIRST teams through fun activities like go-karting and laser tag.

Through our commitment to social media as a form of communication on a global scale, and to consistent team branding on all of our products, Team DAVE works to ensure our name is remembered.

4.3 Overall Market Advantage

Team DAVE is memorable. Even as a rookie team, we began with a strong mentor base. Almost all of our mentors come from other successful FRC teams, with several having previous experience mentoring other teams. This means that they have different experiences and ideas that we could incorporate into effective designs. We owe this to our proximity to post-secondary institutions, which are appealing schools to students who have previously been on FRC teams.

To ensure our region is constantly developing and growing, we are a part of the Waterloo Wellington FIRST Robotics Organization (WWFRO). Through this collaboration, DAVE and the other teams share opportunities to spread our branding and the presence of FIRST in our community. With WWFRO our potential to expand is improved by creating pathways to allow businesses to sponsor a range of teams, spreading their connections within and beyond DAVE. WWFRO improves all aspects of our team, providing our region with sustainable member growth, with the organisation bringing years of hands-on experience.

Team DAVE is unique in that we have a 3:1 student-to-mentor ratio in our subteams. This ratio means that the mentors can spend lots of time working one on one with our students, and ensures that if anyone needs help they can receive it right away. Our mentors feature a mix of both university students and graduates. This gives the students the ability to learn a larger set of skills from various mentors who each have their own specialty in the roles of the team.

4.3.1 Our Branding

Team DAVE prides itself on its efforts in branding and image retention. Our Branding ID ensures unified branding to form a recognizable and consistent team identity. DAVE's brand includes our logo designs, colour palette, typography, branding on robots, team apparel, etc. As a result of our efforts, our t-shirts, promotional material, banners, website, and more make our team recognizable and memorable.



The story behind our logo sums up our team's purpose and mission. The 'D' is an "and" gate which has two connection points. The first represents the link we've created with other FRC and FIRST teams. The second represents how we've given back to the FIRST community, allowing other teams the amazing opportunities

we've had. The 'A' is an inverter, that changes the flow of electricity. We use this to represent our work in the local community, and our effort to change the way society views STEM and robots. Instead of something inaccessible and complicated, we want to show people how enjoyable and rewarding participation can be. The 'V' of the circuit is an LED. We use this to represent how we have used both traditional media and social media to project the values of FIRST, spreading the culture. The 'E' symbolises that the circuit is grounded. Our mentors, sponsors, and parents are the base of the team, keeping the students motivated and passionate. Finally, the arrow coming from the 'V' shows that there is light coming from the LED. This arrow points towards the bright future of the team.

To ensure Team DAVE's lasting impact on the community, it is essential to create a memorable brand that people will recognize. Throughout the Waterloo region, people know when they see our distinctive green colour, they can expect to learn about our team and interact with the robot. Our appearances in the community not only act as a great educational resource for students interested in learning more about STEAM but simultaneously are also a source of entertainment for anyone passing by.

4.3.2 Media Presence

Team DAVE keeps sponsors and the general public updated through social media sites like Instagram and Twitter in addition to our team website. We have also had various articles in the local newspapers written about the team's presence in the Waterloo Region. From our commitment to social media as a form of communication on a global scale, to consistent team branding on all of our products, DAVE works to ensure our brand is memorable.



4.3.3 Community Impact

As the only FRC team located in Waterloo, Team DAVE works to maintain our presence in the community. The team works to create outreach with our elementary schools, high schools, universities, and industry leaders. Our community outreach focuses on introducing STEAM to young children and encouraging them to join the world of FIRST through the various FIRST programs. Our community presence ensures a steady cycle of new members through encouragement to attend St. David's and join Team DAVE in future years.

DAVE uses our local FRC competition, the Waterloo District, as a showcase of success to our city. Team DAVE's presence in the community has made many aware of the FIRST community, and the hub it has created in Waterloo.



5.0 Strategy

5.1 Sponsors

Team DAVE gains sponsors by using the connections we have with families and employers. We ensure that we are in constant contact with our sponsors through updates and invites to our shop. In addition, we hold a yearly BBQ for sponsors and supporters, and invite the sponsors to visit our workshop to see the outcomes of their support. Throughout the year, DAVE holds demos at sponsor companies, showcasing their contribution to the employees.



5.2 Mentors

Mentors are the foundation that keeps the team developing. Our mentors feature a mix of both university students and graduates. Many of our mentors are also alumni from some of Canada's best FRC teams. Mentors have been involved with Team DAVE since day one, they were an integral part in the creation of the team, bringing the amazing experience they had on their teams to the students of St. Davids.

The age gap between mentors and students on DAVE is considerably smaller than that usually found on other FRC teams, creating an environment of openness and communication. Students are able to approach mentors without inhibition to offer up ideas and ask questions. Mentors' support of the students goes far beyond just robotics; they are willing to offer assistance with everything from homework to post-secondary applications.

5.3 Students

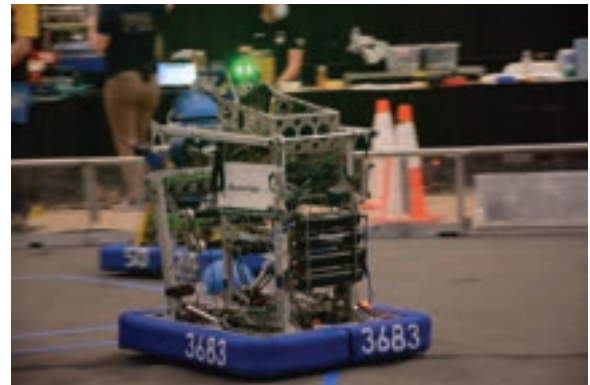
Students are the body of Team DAVE. We encourage each student to be involved in all aspects of the team in order to keep them intrigued and promote continuous learning. We encourage team members to share their experiences, often leading to many new members every year. This benefits the longevity of the team, ensuring sustainability for years to come.

Students on our team continue to be positive ambassadors for FIRST and STEAM moving forward. Since our team began, 100% of our graduating students move on to post-secondary, with over 80% going into STEAM-related majors. This year's graduates are projected to keep the streak going, as 100% of them are continuing onto STEAM-related fields. Alumni make connections with FIRST teams in their respective post-secondary locations, increasing DAVE's network in the FIRST community. Additionally, we have had students come back to mentor DAVE after graduation, sharing their new skills with incoming team members.

5.4 Game

The game for this season is Charged Up presented by Haas. The game pieces this year are cones and cubes, which are scored in your alliance's community grid.

On the grid, there are three levels of scoring: low which can take any piece, and mid and high which require specific game pieces. Furthermore, there is a "coopertition" grid, where if both alliances put five game pieces in, it reduces the number of links, which is a row of three game pieces, needed for a Ranking Point. This year the endgame is a platform, known as the charging station, which robots can climb to be considered docked and engaged, resulting in more points. The coopertition grid, along with having to coordinate to have several robots climb, ensures that communication and working together is the key to success for this year.



During competitions, Team DAVE coordinates with our alliance partners to create the best possible strategy that utilizes every robot's strengths. DAVE keeps partner specialties in mind when drafting a plan, allowing us to maximize alliance partners' potential, and simultaneously working to create a beneficial and successful plan for our alliance. Our individual strategy aims to secure a minimum of 2 Ranking Points for each match, which helps the team in maintaining its position in the rankings.

5.5 Future Plans

For the 2023 season, Team DAVE has set multiple long-term and short-term goals to improve our team. This year, DAVE is planning to overhaul the website to make it user-friendly, and bring back the team blog for the 2024 season to give updates on the status of the team. Furthermore, we are going to update our trophy case and improve our representation in the school. Additionally, we are bringing back hosted events, such as the Open House and Sponsor BBQ in order to strengthen our bonds with the community. DAVE plans on re-establishing past outreach events and consistently attending our outreach events annually.

Team DAVE desires to increase our presence inside St. David and the school board. A weakness we have identified is that certain students in our school assume there are prerequisites for the team. Furthermore, many students aren't aware of our various subteams because of the heavy STEM focus. DAVE plans to extend our presentations to include Business Services and Strategy subteams, also planning to work with the LINK crew to highlight and clarify how our team functions.

For the long-term goals, we hope to establish a robotics course in St. David, with DAVE being heavily involved. Additionally, DAVE wants to hit 3000 followers across each social media platform, using this platform to collaborate with the KW Titans or Kitchener Rangers.



6.0 Finance

6.1 Expenses/ Budget

Each year some of the costs of the team during the build season are for supplies, such as new tools or extra parts, as well as materials needed to build the robot, zip ties, metal, and materials for building our half practice field for testing code. In addition to the costs incurred during the build season, there are additional costs for the competition. These costs range from registration fees for competitions, team swag orders and travel expenses for our further events.

If our team qualifies for District Championships during the season, this adds additional costs to our teams such as travel and accommodation for our team in addition to the required registration fee. If, after District Championships our team qualifies for the World Championships in St. Louis, this adds even more additional costs to our team.

6.2 Sustainable Efforts

Following recent seasons, Team DAVE began making sustainable efforts to both reduce cost and waste. Prior to 2022, all of our scouting was done through paper and resulting in the team using thousands of pieces of paper during the competition season. Paper scouting was both wasteful and expensive, therefore for future seasons our software sub-team designed an app to make scouting more efficient, and environment friendly, and cut down on the cost of printing thousands of papers. The success of switching to digital scouting resulted in DAVE kickstarting many sustainable efforts to make our team more eco-friendly while cutting down on costs.



One of our efforts to be more sustainable was to remove sponsors from the back of our team shirts, as releasing a new shirt every year was an added expense for both the students and the team, generating large amounts of clothing waste. Additionally, during build season, our parents provide meals to the team resulting in paper plates and plastic utensils that would be thrown into the garbage after one use. For the 2023 season, DAVE received approval from the Hospitality department to utilise the dishes and silverware when possible, leading to less single-use waste. Through these initiatives, we are reducing the team's carbon footprint and decreasing our expenses to further support our students.

6.3 Sponsor Levels

Corporate		
Corporate – Bronze	<ul style="list-style-type: none"> - Small logo on pit backdrop, web site, and competition recap videos. - Private robotics demonstration at company functions, as requested. 	\$500+
Corporate – Silver	<ul style="list-style-type: none"> - Medium logo on pit backdrop and web site - Logo on display at community events. - Private robotics demonstration at company functions, as requested. 	\$1500+
Corporate – Gold	<ul style="list-style-type: none"> - Large logo on robot, pit backdrop, web site, and competition recap videos. - Small logo placement on robot cart and trailer displayed at all competitions. - Exposure during press releases and media mention. - Logo on display at community events. - Private robotics demonstration at company functions, as requested. 	\$5000+
Corporate – Platinum	<ul style="list-style-type: none"> - Featured logo on robot, pit backdrop, web site, and competition recap videos. - Large logo placement on robot cart and trailer displayed at all competitions. - Priority exposure during press releases, and priority mention in all media opportunities featuring Team DAVE. - Logo on display at community events. - Private robotics demonstration at company functions, as requested. 	\$10000+
Patron		
Patron - Nuts and Bolts	<ul style="list-style-type: none"> - Represented on website. 	\$100-2500
Patron – Aluminum	<ul style="list-style-type: none"> - Represented on website and pit backdrop. 	\$3000-5000
Patron – Titanium	<ul style="list-style-type: none"> - Represented on website, pit backdrop, patron lettering on trailer. 	\$7500+

6.4 Summary of Current Finance

REVENUE			
Category	Description 2021 - 2022	Expense	Revenue
BALANCE	balance carried over	-	3146
SPONSOR	sponsorship	-	22,500
TEAM FEES	team fee for students	-	1,950
FIRST EVENTS	FLL/FTC events	-	1725
EXPENDITURE			
Category	Description 2021 - 2022	Expense	Revenue
REG FEES	registration fees	8950	-
COMP FEES	competition travel fees	2225	-
ROBOTS	costs associated with robot build	9400	-
EQUIPEMENT	various equipement needed	450	-
OUTREACH	costs associated with outreach events	1950	-
MISC	miscellaneous fees including team meals, sponsor recognition	2100	-
TOTAL REVENUE			29321
TOTAL EXPEDITURE		25075	
GRAND TOTAL			4246

(1) Past season expenditures such as SWAG, SUPPLIES, FLL/FTC costs, and WORLD costs were not included due to COVID restrictions.

(2) Past season revenue such as TEAM FEEs was reduced to reduce cost for students during the COVID season.

(3) We also received approx. \$8500 CAD in in-kind sponsorship





7.0 FAQs

Q: What does FIRST stand for?

A: FIRST stands for “For Inspiration and Recognition of Science and Technology”. FIRST was founded in 1989 by inventor Dean Kamen to inspire young people’s interest and participation in science and technology. Based in Manchester, N.H., the 501 (c) 3 not-for-profit organization designs accessible, innovative programs to build self-confidence, knowledge, and life skills while motivating young people to pursue opportunities in science, technology, engineering, and math.

Q: What does FRC stand for?

A: FIRST Robotics Competition. FRC is an annual competition that helps young people discover the rewards and excitement of education and careers in science, engineering, and technology. FRC challenges high-school-aged young people – working with professional mentors - to design and build a robot, and compete in high-intensity events that measure the effectiveness of each robot, the power of team strategy and collaboration, and the determination of students.

Q: Who can join?

A: Team DAVE invites all high school students in the Waterloo Catholic District School Board to join. We also welcome students in grade 8 who are planning on attending our school in their grade 9 year.

Q: What does Team DAVE mean?

A: We came up with the name Team DAVE after the school we work out of, St. David’s CSS. Through this, we name all our robots after famous Daves or Davids.

Q: What does 3683 stand for?

A: A team is assigned a number according to the time in which they registered for the FRC program. Team Dave received the number 3683.

Q: How does the team get its money?

A: Through sponsorship, fundraisers, and donations.

Q: Is there a new robot each year?

A: Yes. Because the game/task changes each year the team must design and build a new robot each year. Not only does Team Dave’s robot vary from year to year, but each team within FRC approaches a robot design different, meaning an almost unlimited variety of robots at competition.

Q: What’s the answer to life, the universe, and everything?

A: 42



8.0 Contact Information

Team Website: www.teamdave.ca

General email: teamdave.3683@gmail.com

Facebook Page: FRC 3683 - Team Dave

Twitter Page: @team3683

Instagram: @team3683

YouTube Page: Team DAVE

E-mail or call us!

We invite you to contact us to answer any questions you may have!

Team Contact Information

Website: teamdave.ca

Email: teamdave.3683@gmail.com

St. David CSS
4 High Street
Waterloo, ON
N2L 3X5



347 Weber Street North, Waterloo, ON N2J 3H8

Westmountsigns.com

Tel: 519.885.1400

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