

525 SWARTDOGS

CEDAR FALLS HIGH SCHOOL, CEDAR FALLS, IOWA

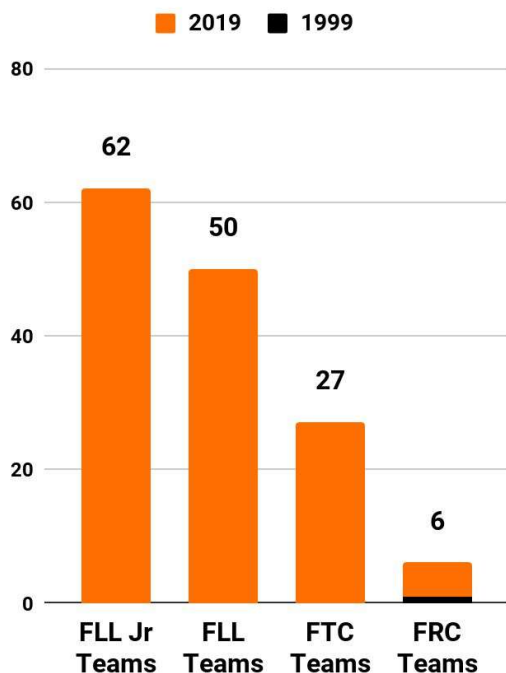
Our Mission

We will collaborate as a team to shape the future of our students and inspire others by providing opportunities to learn, create, and compete while guided by the principles of Gracious Professionalism.



Community

FIRST Teams within 25 miles



- Became initial *FIRST* team in area in 1999
- Mentored 27 teams from other *FIRST* programs in past 3 years
- Conducted 60+ outreach events in past 2 years, including:
 - Teaching programming workshops for girls
 - Hosting school robot competition earning money for Food Bank
 - Engaging 400 4th graders at Iowa Regional
- Ran FLL Regional Qualifier (since 2008) and FLL Jr. Expos (since 2012)
- Organized student-led workshops to recruit new FLL and FLL Jr. mentors since 2017
 - Recruited 30+ coaches 1st year
 - Eliminated waitlists, 200+ kids in 2017
- 425 students on Cedar Falls Schools *FIRST* teams (community of 40,000 people)

Team 525 began a *FIRST* revolution in our area.

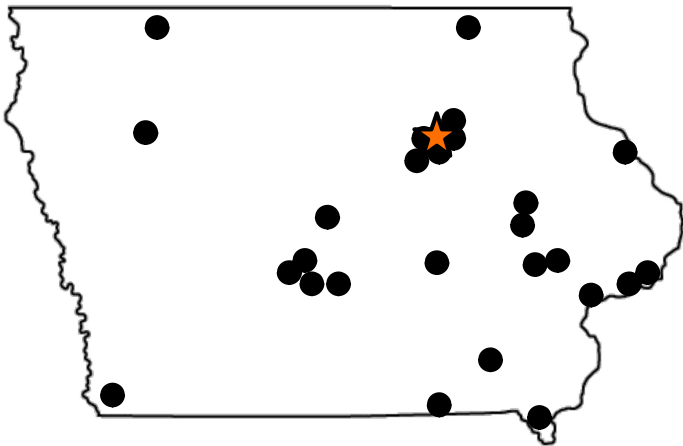
Without Team 525, *FIRST* would not be the same!

525SWARTDOGS

CEDAR FALLS HIGH SCHOOL, CEDAR FALLS, IOWA

Iowa

FRC Teams in 2019

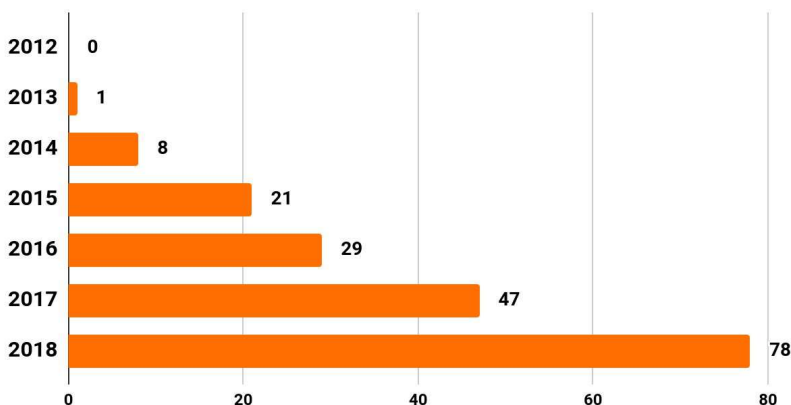


- 3 Iowa teams in 2010
- Channeled \$131,000 of government funding to Iowa FRC teams
- Started 11 FRC teams
- Assisted 29 Iowa and Nebraska teams
- Started and run key Iowa FRC Events: Scrimmage (since 2010), Official Iowa Kickoff (since 2015), and Iowa Regional (since 2016)
- Ensure success and sustainability through professional development classes and weekly conference calls

Team 525 caused an explosion of FRC in Iowa.

China

FRC Teams in China



- Formed partnership with DaDaLeLe in 2012
- Filmed promotional interviews shown in 70+ Chinese schools
- Led workshops in 2013 for mentors of all 8 Chinese FRC teams
- Invited 987, 694, and 1595 to help us run Chinese Robotics Challenge from 2014-2016
 - Resulted in Shenzhen and Shanghai Regionals

Team 525 grew FRC in China by creating the first successful and sustainable Chinese FRC teams.

Without Team 525, *FIRST* would not be the same!

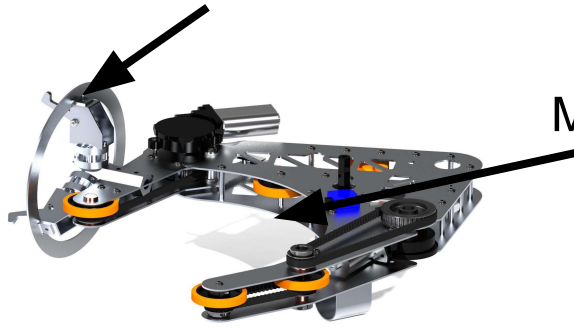
525 SWARTDOGS

CEDAR FALLS HIGH SCHOOL, CEDAR FALLS, IOWA

Meet Yeti!

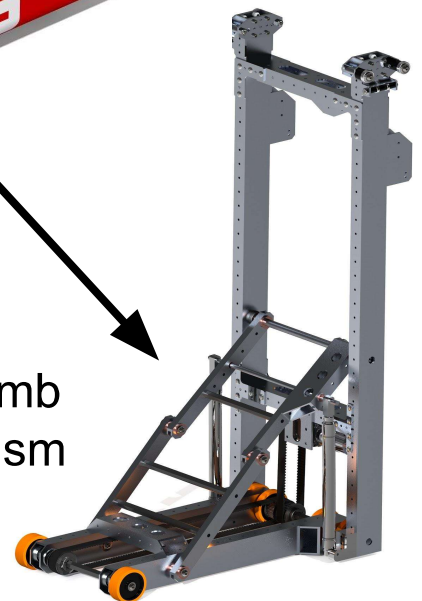
Hatch Panel
Manipulator

Cargo
Manipulator



8 Wheel Tank
Drivetrain

HAB Climb
Mechanism



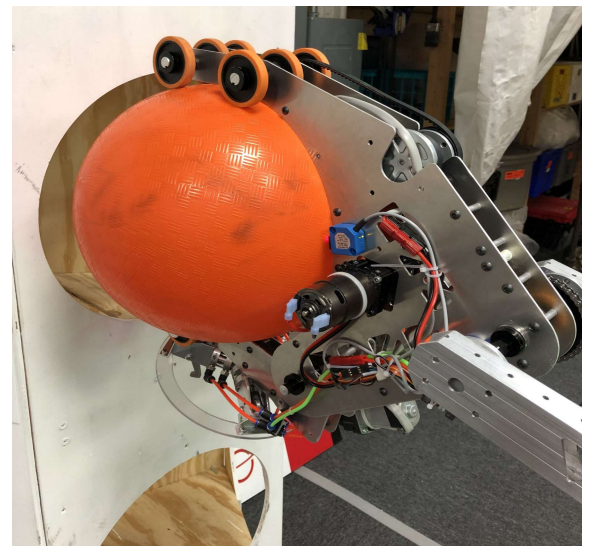


Hatch Panel Manipulator

- Alignment - The robot uses the vision targets to automatically locate the Hatch Panels in the Feeder Station or the Hatch Panel placement locations.
- Hatch Panels - 3 pivoting fingers grasp panels at feeder stations and release them at any of the cargo ship or rocket goals.

Cargo Manipulator

- Two-in-One - A pneumatic cylinder swaps between the cargo and hatch panel manipulators.
- Cargo - The 3 wheel intake uses light sensors to detect cargo and stop the intake automatically.
- Positions- Arm positions the cargo at the correct height for each operator selected scoring position.



HAB Climb Mechanism

- Overview - A single stage elevator with a retractable foot moves downward to lift the robot. The foot has a small drivetrain that moves the robot toward the platform. As the robot moves forward its weight is transferred to the platform and the foot and elevator retracts.
- Automation - Two light sensors detect the robot position relative to the platform making the entire operation automatic when commanded by the operators.

525SWARTDOGS

CEDAR FALLS HIGH SCHOOL, CEDAR FALLS, IOWA

Team 525

- Founded in 1999 (as team 332)
- 40 team members
- 10 mentors
- 47% new to team this year
- 28% female participation

Growing *FIRST* in our Community

- Introduced *FIRST* to Cedar Falls, growing to 46 teams
- Run FLL Regional Qualifier since 2008
- Run FLL Jr. Expos since 2012
- Organized student-led workshop to recruit new FLL & FLL Jr. mentors since 2017
- Mentored 27 teams in other *FIRST* programs past 3 years
- Provide tables, referee training, & support to new FLL Regional Qualifiers

Growing FRC in Iowa

- Started 11 new FRC teams
- Assisted 29 teams in Iowa & Nebraska
- Channeled \$131,000 of government funding to FRC teams across Iowa
- Helped quadruple number of Iowa teams from 7 to 28
- Ensure success & sustainability through professional development classes & weekly conference calls

Started and Run Key FRC Events in Iowa

- Iowa Regional -- since 2016
- Official Kickoff -- since 2015
- Week 0 Scrimmage -- since 2010

John Deere Inspire

- Instrumental in formation of John Deere Inspire
 - Funds 700 teams & provides 300 mentors around the world

Growing FRC in China

- Led workshops in 2013 for mentors of all 8 Chinese FRC teams competing in 2014
- Ran China Robotics Challenge events in 2014, 2015 and 2016
- Organized workshops in conjunction with CRC off season events
- Contributed to increase in Chinese teams from 1 to 115

Promoting *FIRST*

- Promote at STEM & non-STEM events
- 60+ events plus many sessions mentoring FLL teams, past 2 years
- Statewide: State Fair STEM Day, State Capitol STEM Day,...
- Community Service: Games at assisted living center, School robot drive competition earn money for Food Bank
- Favorites: engaged 400 4th graders at Iowa Regional, Makerspace,...

Awards Earned

- 3 Chairman's Awards
- 6 Woodie Flowers Finalists
- 1 Dean's List Finalist
- 13 Regional Winners
- 4 Regional Finalists
- 4 Volunteer of the Year Awards
- 1 Excellence in Engineering
- 1 Imagery Award
- 1 Autonomous Award
- 1 Creativity Award
- 3 Innovation in Control Awards
- 2 Industrial Safety Awards
- 6 Motorola Quality Awards
- 2 Gracious Professionalism Awards
- 1 Excellence in Design Award
- 2 Website Awards
- 2 Industrial Design Awards
- 2 Judges Award