- **Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the current season and the preceding two to five years**

  Team 900 allows students to explore and discover their passions for STEM by providing them access to cutting-edge technology like Virtual Reality and 3D printers. Students can learn how to code extensively using innovative programing approaches like ROS and OpenCV without prior knowledge. Beyond robots, Team 900 helps students develop 21st century skills that transfer to the professional world and their research endeavors in programs such as Duke's Neutrino Group and MIT's Beaverworks.

- **Describe the impact of the *FIRST* program on your community with special emphasis on the current season and the preceding two to five years**

  From presenting at Creekside Elementary School's Science Night to demoing at Northgate's Halloween Boo Bash, Team 900 brings their energy to introduce FIRST to the greater community. Through our many volunteer efforts, students use the skills cultivated on the team to empower the community to have an increased interest in STEM. Our lab at Northgate Mall enables us to expose countless mall visitors to FIRST, and our pursuit of new sponsors allows us to introduce FIRST to new organizations.

- **Describe the team's innovative or creative method to spread the *FIRST* message**

  Team 900 leverages the diversity of our students to unite the distinct populations across our communities. Our students come from 13 different schools and 19 cities across North Carolina; this puts us in the unique position to spread FIRST beyond the Durham community. By volunteering as judges for a robotics Shark Tank competition, teaching young girls how to solder, teaching Boy Scouts robotics skills, and presenting Vision programming in California, we inspire others to pursue STEM fields.

- **Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate**

  Team 900's dedication to thinking beyond the game manual has increased the level of competition within the FIRST community. We have helped other teams implement new technologies like stereoscopic cameras and LIDARs onto their robots by working with companies to discount parts to FIRST teams. Our student-run environment uses interfaces such as Zenhub, Canvas, and Slack to effectively communicate with each other and train new team members to become active members of The Zebracorns and community.

- **Team's initiatives to help start or form other *FIRST* Robotics Competition teams**

  We created TIGER (Teaching Innovation and Graciousness Through Engineering and Robotics) to increase retention rates of FRC teams in NC. Last summer, three rookie teams partook in our program to become more acquainted with FIRST. We secured funding to support these teams for their first year and a half and purchased them an enhanced KOP from AndyMark. One of these teams has won an off season competition; TIGER continuously helps younger teams succeed and improve team longevity in NC.

- **Describe the team's initiatives to help start or form other *FIRST* teams (including *FIRST* LEGO League Jr., *FIRST* LEGO League, & *FIRST* Tech Challenge)**

  As part of our TIGER program, we partnered with NCSSM's distance education program and FIRST NC to solicit schools that expressed an interest in FIRST and could afford future funding for a robotics team. Last summer, we started FRC Team 6888, the Cav-A-Gears, an all-girls team based in Connelly Springs. We helped them secure a letter of support from their principal, establish set meeting times, and fund them for one and a half years. We also have regular checkins to assist them with any issues.

- **Describe the team's initiatives on assisting other *FIRST* teams (including *FIRST* LEGO League Jr., *FIRST* LEGO League, & *FIRST* Tech Challenge) with progressing through the *FIRST* program**

  Our collaborative lab with four other FIRST teams forges an environment where we support and learn from each other. We assist these teams with strategy, programming, mechanical feedback, and implementing gyroscopic and light sensors. We hope our use of 3D printers, virtual reality, and ROS inspires the younger students to become more innovative and progress through FIRST's program. These younger students have become part of our FIRST family, and we cheer them on in all of their endeavors.

- **Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (including *FIRST* LEGO League Jr., *FIRST* LEGO League, & *FIRST* Tech Challenge)**

  Besides mentoring the teams in our space (FLL 206, FLL 10, FLL 36432, and FTC 8569), we have students who mentor other teams in their local communities. This year we began mentoring three teams from Trinity School of Durham and Chapel Hill: FTC teams 3587, 2827, and 5459. We helped them with programming challenges; their code now consists of full teleoperated control, and 2 of the teams have working autonomous code. In the past two years we have mentored 7 FLL teams, 10 FTC, and 2 FRC teams.

- **Describe your Corporate/University Sponsors**

  Our host school, NCSSM, is a member of the UNC school system and has provided us with tremendous support for the past 16 years. Sponsors like Nvidia and Stereolabs take a particular interest in our vision processing and commend us on our accomplishments. Other sponsors include Qualcomm, United Therapeutics, and Zubaz, who provide us with mentors, money, and our signature zebra pants. Sponsors like Zubaz and Northgate Mall allow us to introduce FIRST to new organizations.

- **Describe the strength of your partnership with your sponsors with special emphasis on the current season and the preceding two to five years**

We rely on our sponsors' support and reciprocate it by participating in corporate events like IBM's Take Your Kids To Work Day and nVidia's FIRST day. We annually host an open house and key stakeholders presentation, inviting sponsors to our lab to showcase our progress. This season, we had speakers from United Therapeutics & Cisco present on topics like biomaterial engineering & entrepreneurship. We value our sponsor relations; they share our mission to inspire and empower students everywhere.

- **For *FIRST* Robotics Competition teams older than 5 years, briefly describe your team's broader impact from its inception**

  Originally founded as Team Infinity in 2002, The Zebracorns are creatures whose stripes represent the diversity of our students and their skill sets. However, our team culture is more than black and white stripes. Our culture is built upon personal and team excellence where we use modern technical and professional skills to prepare ourselves for tomorrow's challenges. Our innovation pushes the boundaries of high school robotics; we share our feats of ZebraReality and ROS with the FRC community.

- **Describe how your team would explain what *FIRST* is to someone who has never heard of it**

  FIRST robotics helps students build confidence and to demonstrate a higher level of self-understanding, commitment, and communication. It goes beyond building a 120-pound robot to compete on the field. FIRST is about spreading STEM to populations who might not have access to it. It is an international community like no other, one where we promote gracious professionalism and the spirit of friendly competition, valuing each student and mentor's unique thoughts to grow as a FIRST nation.

- **Briefly describe other matters of interest to the *FIRST* Judges, if any**

  This year we volunteered at 14 outreach events and 5 FIRST events, shared FIRST ideals with our 14 corporate sponsors, and spent over 5400 hours in the lab. We've published 33 instructional documents for the FRC community, and our white papers have been downloaded nearly 4000 times on Chief Delphi. In the past 5 years, we have assisted 63 FRC teams. We also have 3 generations of mentors on our team, showing that even with an average turnover rate of two years, we have continuity within Team 900.