**Proposal Regarding Relationship between Senior Design Team and SPARC for IEEE 2019**

* Goals
  + Senior design team exists to assist SPARC on building a competitive IEEE robot
  + Will strive to increase the level of quality and depth of this and future SPARC projects by allowing senior design members to work closely with other team members and by placing an emphasis on better documentation.
  + Will increase the collective work hours applied towards the competition robot than SPARC members could originally support in balancing classes and other commitments
  + Will allow progress on the electrical side of the robot to proceed at a faster rate and allow the team to explore more alternative strategies and algorithms to create the most effective design
* Issues with other senior design project teams and solutions to mitigate the issues
  + Senior design team takes ownership of section of project with little to no input from club team
    - Instead, the senior design group will be focused on helping the team and have direct collaboration with club members. Senior design members will partner with a club member on tasks with a strong focus on mutual collaboration. For example, a senior design member may work with a club member on determining best algorithm to detect walls with LIDAR. The two students will work mutually on the tasks required and will meet at least weekly to figure out how to best split the work load and what they had learned in the previous week.
    - The scope of the senior design project includes all electrical but does not restrict club members from involvement with any aspect.
  + Senior design members are concerned mostly with grade and not outcome of competition
    - By limiting the number of total members of the senior design team to four students, half of the senior design team has a long and close relationship with SPARC.
  + Seniors typically focus on graduation and post undergrad commitments and tend to slack off on project towards end of semester
    - Competition will be before end of project and Senior Design fair therefore members will be more motivated to see the project to completion
  + Senior design team potentially takes competition travel slots
    - Exclusive design team members will be limited to two individuals therefore reducing the effect of this.
    - Competition is in Huntsville which reduces number of hotel rooms required as several club team members are from Huntsville area therefore potentially increasing the number of people travelling to the competition.
    - Formal travel applications will be submitted by each student. Work ethic and amount of involvement with team will be primary considerations.
* Electrical team will be composed of three types of members
  + SPARC members (3+ individuals)
  + SPARC and Senior Design members (2 individuals)
  + Senior Design members (2 individuals)
* Mechanical team will be 100% SPARC members
  + will collaborate with electrical team as a whole
  + Senior design project will not focus on mechanical design thus allowing mechanical team freedom of design. However, mutual collaboration will be required in order to ensure the success of the entire team.
* Proposed Weekly Meeting Structure
  + 1-2 hour Mechanical meeting
  + 1-2 hour combined Electrical meeting
  + 5-10 min status update of two sub teams at general meeting
  + 3 \* 1 hour Senior design work sessions (MWF @ 2PM)
    - At least one day a week in senior design lab to maintain documentation required for class
    - At least one day a week in SPARC lab or open work environment
      * may overlap with combined electrical meeting depending on availability of students
  + Other meetings will be called as needed
* Documentation
  + All files will be open to all members of the team
  + Documentation required for class along the way will be written by senior design members but will be accessible and open for feedback from rest of team
  + Documentation will be published to SPARC's public Github upon completion of competition as resource for future SPARC projects and competition teams