

# Risk Assessment Safety Plan

## Project information:

Southeast Con 2019 Hardware Competition

02/28/2019

Name of Project	Date of submission																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Team Member</th> <th style="width: 33%;">Phone Number</th> <th style="width: 33%;">e-mail</th> </tr> </thead> <tbody> <tr> <td>Fabio Trinidad</td> <td>(863)604-7645</td> <td>ft16d@my.fsu.edu</td> </tr> <tr> <td>Daniel Delgado</td> <td>(786)514-7161</td> <td>Dad15c@my.fsu.edu</td> </tr> <tr> <td>Kyle Voycheske</td> <td>(321)272-0627</td> <td>Kav14d@my.fsu.edu</td> </tr> <tr> <td>Chendong Yuan</td> <td>(850)345-0582</td> <td>Cy18o@my.fsu.edu</td> </tr> <tr> <td>Chase Sapp</td> <td>(850)303-9874</td> <td>ccs16c@my.fsu.edu</td> </tr> </tbody> </table>	Team Member	Phone Number	e-mail	Fabio Trinidad	(863)604-7645	ft16d@my.fsu.edu	Daniel Delgado	(786)514-7161	Dad15c@my.fsu.edu	Kyle Voycheske	(321)272-0627	Kav14d@my.fsu.edu	Chendong Yuan	(850)345-0582	Cy18o@my.fsu.edu	Chase Sapp	(850)303-9874	ccs16c@my.fsu.edu	
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## I. Project description:

This project revolves around a robotics competition, in which a completely autonomous vehicle will be developed for the purpose of collecting various colored debris scattered across a predefined playing field. As described in the competition rules, this robot must be able to clear debris while avoiding other vehicles in the playing field. This robotics competition will utilize a point system to determine the winner of the competition, and therefore most of

## II. Describe the steps for your project:

1. Design the robot to meet Southeast Con 2019 Hardware Competitions
2. Cut out frames for the robot's final design
3. Solder wires to electronic components
4. Attach electronic components to robot
5. Program microcontroller
6. Connect electronic components to microcontroller
7. Test and debug robot

## III. Given that many accidents result from an unexpected reaction or event, go back through the steps of the project and imagine what could go wrong to make what seems to be a safe and well-regulated process turn into one that could result in an accident. (See examples)

1. While cutting out the frame of the robot, there is a possibility of getting cut by the machine used.
2. Soldering wires to all electronic components introduces the risk of getting burned if the soldering tool is improperly handles.
3. While soldering wires to electronic parts, there is also a possibility of getting shocked.
4. Exposing the battery excessive heat or puncturing the package, runs the risk of explosion.
5. Accidentally connect the battery terminals causing burns and/or shock.
6. Loose hair that is expose can get caught in motors during operation.
7. Exposed wires while connecting to an active device, can lead to shock and/or burns.

## IV. Perform online research to identify any accidents that have occurred using your materials, equipment or process. State how you could avoid having this hazardous situation arise in your project.

- 1) Handling un-shielded wires that are carrying a voltage can lead to shock.
- 2) Having materials on self that can conduct a current.
- 3) Hair or loose clothing that can get caught in motors.
- 4) Cutting materials toward the user or others.
- 5) Carrying heavy equipment by yourself.
- 6) Alone when someone was injured.
- 7) Rule 410A2: Supply and Communication Systems: Employers shall provide training to all employees who work on or in the Vicinity of exposed energized lines and pars – "IEEE-SA - Program & Structure - The National Electrical Safety Code® (NESC®)." IEEE-SA - The IEEE Standards Association - Home, [standards.ieee.org/products-services/nesc/program.html](http://standards.ieee.org/products-services/nesc/program.html).

**V. For each identified hazard or “what if” situation noted above, describe one or more measures that will be taken to mitigate the hazard. (See examples of engineering controls, administrative controls, special work practices and PPE).**

- 1) when working with live wire, have the proper PPE.
- 2) Remover all Jewelry and conductive materials before entering the lab.
- 3) Tie up hair and wear tight but flexible clothing.
- 4) Cut away from self and others
- 5) Work in groups when carrying heavy supplies.
- 6) Make sure to have another person present when working in the lab.
- 7) Turn off all active devices before connecting wire(s) to them.

**VI. Rewrite the project steps to include all safety measures taken for each step or combination of steps. Be specific (don't just state “be careful”).**

1. Design the robot to meet Southeast Con 2019 Hardware Competitions and safety rules
2. Have trained individuals cut out frames for the robot's final design
3. Where PPE when soldering wires to electronic components
4. Attach electronic components to robot without having a presence of a live current.
5. Program microcontroller while having no unexpected equipment attached.
6. Connect electronic components to microcontroller, while the circuit is not live
7. Test and debug robot with at least another student is present.

**VII. Thinking about the accidents that have occurred or that you have identified as a risk, describe emergency response procedures to use.**

If accident occurs:

- 1) Notify 911
- 2) Contact faculty
- 3) Turn off all devices if possible
- 4) If someone is being shocked do not lay hands on them, let trained staff proceed.
- 5) Stay with situation until told otherwise.
- 6) Prepare to avoid the situation in the future.

**VIII. List emergency response contact information:**

- Call 911 for injuries, fires or other emergency situations
- Call your department representative to report a facility concern

Name	Phone Number	Faculty or other COE emergency contact	Phone Number
Chase Sapp	850-303-9879	FSU Police	850-644-1234
Kyle Voycheske	321-272-0627	Emergency	911
Fabio Trinidad	863-604-7645	Dr. Hooker	850-410-6463

**IX. Safety review signatures**

- Faculty Review update (required for project changes and as specified by faculty mentor)
- Updated safety reviews should occur for the following reasons:
  1. Faculty requires second review by this date:
  2. Faculty requires discussion and possibly a new safety review BEFORE proceeding with step(s)
  3. An accident or unexpected event has occurred (these must be reported to the faculty, who will decide if a new safety review should be performed.
  4. Changes have been made to the project.

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**Report all accidents and near misses to faculty mentor.**