**FLL Robot Design Engineering Process Log**

Company Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Team members\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Challenge**

Your company has been challenged to design a robot that:

* Has a strong mechanical design including:
	+ Structural integrity
	+ Uses the least amount of parts with the least amount of time making repairs
	+ Can balance speed, strength, and accuracy on every task
* Has efficient, quality, and autonomous programming that:
	+ Achieves its purpose every time
	+ Uses the fewest amount of blocks possible and is easy to understand
	+ Does not need to be changed constantly
* Has a unique strategy and is innovative by:
	+ Documenting how the robot design and program improved in an organized way over time.
	+ Developing a clear strategy to accomplish the most game missions possible
	+ Creating your team’s own original solutions that give you a significant advantage over other teams.

**Research Ideas for Building Designs and Programs**

Ideas for research:

-Google past FLL competitions to see what they have tried.

-Watch the programming videos you haven’t watched yet and try your new skills on the robot.

-Try new blocks on the programming software. If you don’t know what they do, hit the help button and see if you can figure it out.

-Look up building directions for different driving bases for the robot online or in the software.

Find at least three different sources and write your information and ideas below:

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**Plan**

Your team needs to come up with an innovative and unique strategy that helps you complete the most missions possible. Start by focusing on 3 missions, and when you achieve those, add more. What will you decide to try for your strategy?

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How will you ensure that:

1. You document how the robot design and program improved in an organized way over time?

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2. You develop a clear strategy to accomplish the most game missions possible?

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3. You create your team’s own original solutions that give you a significant advantage over other teams?

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**Plan**

Completely take apart your robot. Your team needs to develop its own unique driving base. What will your first prototype look like? Who is going to do what? Build this after getting approval from Mrs. Marshall.

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How will you ensure that:

1. Your robot design has structural integrity? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. Your robot uses the least amount of parts with the least amount of time making repairs?

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3. Your robot can balance speed, strength, and accuracy on every task?

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**Plan**

Your team needs to develop its own efficient, quality, and autonomous program. What will your first prototype look like? Who is going to do what? Start programming after getting approval from Mrs. Marshall.

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How will you ensure that:

1. Your program achieves its purpose every time?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. Your program uses the fewest amount of blocks possible and is easy to understand?

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3. Your program does not need to be changed constantly?

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**Checkpoint**

Is your strategy still working? If yes, are you still meeting all of the goals in your plan on page 2? If not, what do you need to change?

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Is your structural robot design still working? If yes, are you still meeting all of the goals in your plan on page 3? If not, what do you need to change?

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Is your program still working? If yes, are you still meeting all of the goals in your plan on page 4? If not, what do you need to change?

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**Checkpoint**

Is your strategy still working? If yes, are you still meeting all of the goals in your plan on page 2? If not, what do you need to change?

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Is your structural robot design still working? If yes, are you still meeting all of the goals in your plan on page 3? If not, what do you need to change?

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Is your program still working? If yes, are you still meeting all of the goals in your plan on page 4? If not, what do you need to change?

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