

Robot Design Judging

FLL #: _____ Event #: _____ Judge: _____

Innov. Design	Check box for each of the following statements if they are true:	Design creative, unique use of drive train or structure	Manipulators/sensors used in unexpected ways	Unique/creative strategy for coordinating missions	Programming tasks used in unexpected ways	1: Fair 2: Good 3/4: Excellent 1 exceptional: Excellent
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		Needs Improvement (1)	Fair (2)	Good (3)	Excellent (4)	Notes	
Strategy	Communicates complete design process, from initial concept thru build, test, & refinement	Standard Design	Some forethought	Basic understand			
	Innovative strategy combining mission tasks, plotting routes, maximizing points	Ease of task	Often ease of task	Strategic planning			
Locomotion and Navigation	Goes defined distances efficiently	Difficulty	Sometimes	Most of time			
	Adjusts speed, position sensing for optimum speed and accuracy	Too fast or slow	Somewhat	Most of time			
	Turns accurately and consistently	Not acc or consis	Sometimes	Reasonably			
	Moves between two points accurately and consistently	Inconsistent	Sometimes	Reasonably			
	Excellent allowance for variables (battery wear, obstacles). May use sensors	No effort to know	Little to no effort	Allows for variables			
Programming	Programs logically organized	Disorganized	Somewhat	Organized			
	Programs very efficient	Inefficient	Some efficient	Most efficient			
	Programs always work, even for complex tasks	Unpredictable	Somewhat	Mostly			
	Sensors to replicate actions	Used or Not Used (If not used, skip next two lines)					
	Sensors guarantee certain actions in every trial	Inadequate	Occasionally	Used effectively			
	Programs work in competition as in practice	Do not do tasks	Some of tasks	Do what's expected			
	Variables, loops, subroutines, and conditions	Used or Not Used (If not used, skip next line)					
	Variables, loops, subroutines, and conditions are effective	Defined but unused	Not understood	Are needed			
Kids did work (TW)	Children can describe mission and reference the program	Cannot	Part	Most			
	Knowledge of structure and programming shows understanding of underlying design, science, and technology	Little knowledge	Min. understanding	Moderate			
	Building/programming was done by team members	Appears coach did it	Directed by coach	Help from coach			

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Notes

		Needs Improvement (1)	Fair (2)	Good (3)	Excellent (4)
Structural	Robot assembles easy	Difficulty	Few errors	Slow, no errors	
	Robot base stable and robust	Weak, falls apart	Some stability	Stable, not robust	
	Attachments	Used or Not Used (If not used, skip next line)			
	Attachments modular; function as expected and easily added/removed. Displays wide range of capabilities. Attachments perform tasks well and repeatable	Weak, falls apart	Not modular	Modular, ok	
	Robot designed by team; design is unique and creative	From book	Some team ideas	Designed by team	
Overall Design	Robot is elegant, complete system	Lacks most	Lacks many	Lacks some	
	All components work well together	Few do	Some do	Most do	
	All components look like they belong together	Few do	Some do	Most do	

Additional Notes on Team and Robot:

Sample questions you can ask:

- Which members of the team worked on the design and construction of the robot?
- Who came up with the ideas for what it should do and how it would do it?
- Which members of the team worked on the programming of the robot?
- What is special about your robot?
- What sensors do you use if any on your robot? What are they for?
- Out of 5 attempts, how many times does your robot succeed?
- What role did your mentor have in this design? What have you learned from your mentor?