

FIRST® **LEGO**® *League*

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RESEARCH PROJECT OVERVIEW

SESHAN BROTHERS

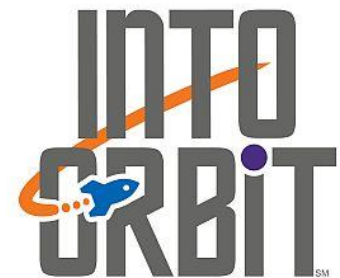
ABOUT THE AUTHOR

- Seshan Brothers were on team Not the Droids You Are Looking For
- Our research project for Trash Trek was a Global Innovation Award semi-finalist project (Top 20 out of 30,000 teams).
- Our research project in Nature's Fury won Innovative Solution at the FIRST LEGO League International Open in Toronto.
- Our research project for World Class was EV3Lessons.com! ;-)
- We are the Champion's award winners from World Festival 2018



WHAT IS THE RESEARCH PROJECT?

- A group research project related to the year's theme
- Come up with an innovative solution to a real-world problem
- **Themes:**
 - 2011: Food Factor (food safety)
 - 2012: Senior Solutions (senior citizens)
 - 2013: Nature's Fury (natural disasters)
 - 2014: World Class (education)
 - 2015: Trash Trek (garbage)
 - 2016: Animal Allies (animals)
 - 2017: Hydro Dynamics (water)
 - 2018: INTO ORBIT (space)



NEW RUBRICS FOR 2017

- Research
 - Identify a problem and analyze existing solutions
- Innovative Solution
 - Develop a solution to your problem and understand what it would take to implement this idea.
- Presentation
 - Share your project with people/organizations
 - Create an effective presentation for judges

		Beginning	Developing	Accomplished	Exemplary
Research		Problem Identification * Clear definition of the problem being studied			
N		unclear, few details	partially clear, details missing	mostly clear, detailed	clear, very detailed
D					
Sources of Information		Quality and variety of data/evidence and sources cited			
N		minimal quality; variety limited	quality OR variety need improvement; did not include professional(s)	sufficient quality and variety; included professional(s)	extensive quality and variety; included multiple professionals
D					
Problem Analysis		Depth to which the problem was studied and analyzed by the team, including extent of analysis of existing solutions			
N		minimal study; no analysis	minimal study; some analysis	sufficient study and analysis	extensive study and analysis
D					
Comments					
Innovative Solution		Team Solution * Clear explanation of the proposed solution and description of how it solves the problem			
N		difficult to understand	some parts confusing	understandable	easy to understand by all
D					
Innovation		Degree to which the team's solution makes life better by improving existing options, developing a new application of existing ideas, or solving the problem in a completely new way.			
N		existing solution/application	solution/application contains some original element(s)	original solution/application; potential added value	original solution/application; demonstrated added value
D					
Solution Development		Systematic process used to select, develop, evaluate, test, and improve the solution (implementation could include cost, ease of manufacturing, etc.)			
N		process AND explanation need improvement	process OR explanation need improvement	systematic process included evaluation	systematic process included evaluation; implementation considered
D					
Comments					
Presentation		Sharing * Degree to which the team shared their Project before the tournament with others who might benefit from the team's efforts			
N		shared within the team and/or relatives	shared once outside the team	shared with one audience who may benefit OR one professional	shared with multiple audiences who may benefit OR multiple professionals
D					
Creativity		Imagination used to develop and deliver the presentation			
N		minimally engaging OR unimaginative	engaging OR imaginative	engaging AND imaginative	very engaging AND exceptionally imaginative
D					
Presentation Effectiveness		Message delivery and organization of the presentation			
N		unclear OR disorganized	partially clear; minimal organization	mostly clear; mostly organized	clear AND well organized
D					
Comments					
Strengths:		Research	Innovative Solution	Presentation	

*Required for Award Consideration

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PROJECT PROCESS



Look for lessons on each of these topics on FLLtutorials.com

SAMPLE PROJECTS

- **2011: Food Factor (food safety)**
 - Detecting spoilt milk
- **2012: Senior Solutions (senior citizens)**
 - Helping seniors remember where they left their possessions
- **2013: Nature's Fury (natural disasters)**
 - An early-warning ash detection system for airplanes
- **2014: World Class (education)**
 - A better way to learn to program the EV3 (EV3Lessons.com)
- **2015: Trash Trek (garbage)**
 - A more efficient way to recycle batteries
- **2016: Animal Allies (animals)**
 - Bats getting killed by wind turbines
- **2017: Hydro Dynamics (water)**
 - Detecting leaking pipes



CREDITS

- This lesson was written by Sanjay and Arvind Seshan
- More lessons available at www.ev3lessons.com and www.flltutorials.com



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