

# Engineering & Communication: Technical Report

School name and # AS IT APPEARS ON THE OFFICIAL LIST:

Judge's name:

1 0 = Yes (1) or No (0)    2 1 0 = 2: Excellent, 1: Good, 0: Poor or missing

SCORE

## Overall Presentation

12 pts max

- Report is 20 pages or less
- Measurements are in SI units (exceptions include 1/2-inch PVC, etc.)
- Report is well thought out, logically organized, and concise
- Report is "professional" and well written (e.g. attention to spelling, grammar, sentence structure)
- Includes a table of contents
- Report clearly describes how the vehicle was designed to accomplish the mission tasks
- Report demonstrates an understanding of the technical and scientific concepts behind designing and building the vehicle
- Demonstrates that safety was taken into account when designing and building the vehicle

1 0  
1 0  
2 1 0  
2 1 0  
1 0  
2 1 0  
2 1 0  
1 0

## Title Page Contains

4 pts max

- Company name
- School, club, or organization's name, city, and state  
*Note: If an international company, include the country*
- List of the members of the company and their role
- Names of instructor(s) and/or mentors

1 0  
1 0  
1 0  
1 0

## Abstract

3 pts max

- Is 250 words or less
- Concise and clear summary of the company's work

1 0  
2 1 0

## Photos of ROV

4 pts max

- Complete, intact vehicle photo
- Photo captions or descriptions accompany photos
- A mechanical drawing or sketch is included (may be of a sub-system)  
*Note: The intent is to deem excellence if the drawing/sketch is particularly well done*

1 0  
1 0  
2 1 0

## Budget/Expense Sheet

4 pts max

- Math accurate
- Detailed accounting of funds, e.g. incomes and expenditures properly accounted
- Donations listed, including fair market value

1 0  
2 1 0  
1 0

## Electrical Schematic

5 pts max

- Neatly hand-drawn or created using CAD
- Discloses presence of fuse/circuit breaker
- Clearly represents the electrical system

2 1 0  
1 0  
2 1 0

## Design Rationale

14 pts max

- Presented in a clear and logical manner
- Demonstrates step-by-step planning and design process
- Demonstrates acquisition and application of technical skills
- Documents and discusses how the ROV was designed and built to accomplish the mission tasks
- A flowchart describes the software flow OR rationale is provided describing why a hardware only approach was selected
- Describes safety features of vehicle, or safety precautions necessary while handling/operating the vehicle

2 1 0  
2 1 0  
2 1 0  
4 3 2 1 0  
2 1 0  
2 1 0

**School name and # AS IT APPEARS ON THE OFFICIAL LIST:**

**Judge's name:**

**Vehicle Systems**

**4 pts max**

Company presents own, original work

2 1 0

Company mentions that work was done by commercial companies and/or instructors or mentors

0 -1 -2

Company demonstrates understanding of vehicle systems and operations

2 1 0

**Challenges**

**4 pts max**

Describe at least one challenge faced

2 1 0

*Note: Two points if both a technical and a non-technical challenge are described*

Method used to overcome the challenge

2 1 0

*Note: Two points if both a technical and a non-technical method are described*

**Troubleshooting Techniques**

**6 pts max**

Explains a troubleshooting technique(s)

2 1 0

What was used to identify and solve the problem

2 1 0

Describes any testing done on components or vehicle

2 1 0

*Note: Two points if whole vehicle was tested; one point for component testing only*

**Payload Description**

**2 pts max**

Design and function of payload tools is clearly described

2 1 0

**Future Improvement**

**2 pts max**

Thoughtful and logical discussion for one improvement

2 1 0

**Lessons Learned**

**4 pts max**

Lesson learned or skill gained relating to the process – technical

2 1 0

Lesson learned or skill gained relating to the process – interpersonal

2 1 0

**Reflections**

**2 pts max**

Personal or professional accomplishments from competition participation

2 1 0

**Teamwork**

**7 pts max**

Company demonstrates that the vehicle (and the report) was a company effort

2 1 0

Company designed and built vehicle, particularly electrical and software

2 1 0

Company developed specific assignments to design/build the vehicle

2 1 0

Company developed a schedule to aid in building the vehicle

1 0

**Acknowledgements**

**3 pts max**

Companies, individuals who contributed funds, equipment, and/or technical/moral support are acknowledged

2 1 0

Recognizes donations of funds, supplies and time

1 0 -1

**Technical Report Score:**

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**Discretionary Points**

Bonus points for extraordinary work

**3 pts max**

3 2 1

**Deductions**

Lacks software block diagram or flow chart, if applicable

**-5 pts max**

-2

Over use of appendices

-3

**Technical Report Total Score:**

Comments: