

STEM Challenge: VIQC Middle School - Career Readiness Online Challenge; 1024F (The Fates)

Date: Monday, November 1, 2021

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Location: Indianapolis, Indiana; 46236; Fall Creek Valley Middle School

Rules of the Challenge

Explore and document the inner workings of an electronic device. Your submission should use a combination of text and images to document and describe what you find inside an electronic device. We challenge you to choose a device you don't mind breaking apart (for example, an old phone) then carefully deconstruct it to see what's inside. Identify and research the components, try to determine what role they serve in the device's design, and summarize your findings in a report.

Things to keep in mind for a successful submission:

- For safety purposes, make sure the device you choose is approved by your coach, mentor, or parent as appropriate
- Extreme caution should be used with capacitors, which may hold a charge
- Any power sources or batteries must be disconnected or removed before deconstruction
- What kind of device did you choose to explore, and why?
- What identifiable parts did you find during deconstruction?
- What role does each component play in the system?
- What did you learn from exploring your electronic device?

Technical Details

A submission must meet these minimum requirements in order to be judged.

1. Entry is created and produced solely by student team members. It is acceptable for adults to assist with downloading any necessary resources or submitting the story where students may need permission.
2. Format: One PDF file (up to 20MB) that includes all content, including images.
3. Size: Summary report up to 500 words.
 - Title page, credits, complete parts lists, image captions, and any appended citations are not included in word count.
 - Judges may use a software-based word counter such as <http://www.montereylanguages.com/pdf-word-count-online-free-tool.html> to verify word counts.
4. Title Page: Each entry must include a title page that includes
 - Title of submission
 - Names of students who participated (using first names only is acceptable)

- Team number
 - Location of team
5. Images: Each entry must include at least four (4) photographs of your project.

Judging Information

Judging Criteria

- **Up to 15 points** for an Introduction identifying the electronic device selected, and why it was chosen
- **Up to 15 points** for a summary of the chips and components found inside the device, and research findings of what the components do and the roles they play in the system
- **Up to 15 points** for a conclusion describing the lessons learned from this project
- **Up to 15 points** for clear presentation of findings and organization of content
- **Up to 15 points** for the quality of quality and readability of the writing, including spelling, grammar, and sentence structure.
- **Up to 15 points** for the quality and thoroughness of images used to document the project.

Define the Problem:

We need to locate an electronic device and take it apart with caution as well as analyzing its parts.


Generate Concepts:

Name	Easiness to take apart	Whether it matters to me	Interestingness	Total	Check
Old computer	2	2	1	5	X
New Computer	1	0	3	4	X
Flip Phone	3	3	2	8	<input checked="" type="checkbox"/>
Smart Phone	0	1	0	1	X

We will probably take apart a flip phone because it scores the best for my constraints.

Build and Test:

Video link youtube with Explanations in Video:

 1024F Reverse Engineering a Flip Phone (VEX Robotics)

Lessons Learned:

1. We have learned about the patience needed to disassemble a piece of technology and the extent of caution necessary.
2. We have learned about the interior of that specific model of flip phone and about phones in general.

Resources Used:

Small Phillips Head screwdriver

Flip Phone; Verizon Model Number CDM8975PTT