

## AI Design Contest – Activity 4: Proposing Your Design

Team Name:

Team Member Names:

### Purpose:

- Teams will organize the design strategies they have developed throughout the first three activities into an executive summary and final presentation.
- In their presentation, teams will explain how data they collected from their home appliances informed their approach to designing for different quantifiable goals they create based on a specific home scenario.
- Teams will incorporate their knowledge of AI and different tools for appliance power scheduling to discuss opportunities to improve home energy efficiency and reduce operational costs.
- **Teams should use this activity to synthesize what they have learned into clearly communicated insights regarding their design of a smart energy management system.**

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## **Part 1: Reporting Your Findings – Executive Summary**

**Instructions:** In 5 pages or less (not including your Reference Page), write an Executive Summary discussing the current operations of the home appliances/devices measured in your home and how the data you collected and analyzed led you to make decisions about your design for smart energy management.

Use the “PTC\_24\_MS\_4\_Executive Summary Outline” Word document as a template for more detailed information on what to include in your Executive Summary and how to structure it. You can write your executive summary directly into that document, as it is already properly formatted.

This Executive Summary should review and explain any updates to your understanding of what you learned from completing Activities 1-3. Look back to the previous summaries your team created at the end of each activity. Discuss how your main takeaways changed as you moved from considering the current operations in your home to considering the operating goals needed to create an effective power schedule for your specific home scenario.

As a whole, your Executive Summary should accomplish the following main goals:

- Explain how analyzing your data helped you discover different trends in your devices’ power usage and energy consumption.
- Explain how your initial ideas about the two different device types were changed by the data you collected and analyzed.
- Explain how the trends you observed helped you decide on changes you could make to design for the different goals of your selected scenario.
- Explain how you would use IoT devices and AI in a smart energy management system to improve the efficiency of your device operations, based on the criteria of your selected scenario.

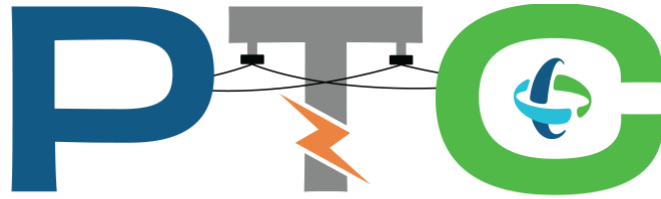
### **Saving your Executive Summary**

After you have finished writing your Executive Summary, save it as a PDF file, named “Executive Summary\_[Team Name].pdf”. You will submit this file using the submission instructions at the end of this document.

### Executive Summary Rubric:

As you write your Executive Summary, check the rubric criteria below to make sure you're meeting or exceeding all the requirements for writing a strong report. For more detailed information about how your report will be evaluated, read through the rubric breakdowns that follow.

<b>Table 4.1: Rubric Criteria for Executive Summary</b>		
<b>Category</b>	<b>Criteria</b>	<b>Score (0-5)</b>
<b>Content</b>	<ul style="list-style-type: none"><li>• Responds to all prompts from the Table of Contents</li><li>• Paragraphs and information are organized, connected, and flow.</li><li>• Explanations are clear, coherent, and consistent.</li><li>• Information included is relevant and accurate.</li><li>• New ideas and changes in early ideas are discussed.</li></ul>	
<b>Claims</b>	<ul style="list-style-type: none"><li>• Identifies method(s) to improve device efficiency</li><li>• Applies reported data trends to current and future work</li><li>• Clearly defends and justifies why decisions were made</li><li>• Decisions and conclusions are appropriate, well-communicated, and apply to the context of the referenced data.</li><li>• Clearly explains and relates claims and designs back to real-life situations</li></ul>	
<b>Conventions</b>	<ul style="list-style-type: none"><li>• Entire report adheres to the outlined formatting:<ul style="list-style-type: none"><li>○ Report includes Team Name, Team Member Names, Paper Title, and Numbered Pages.</li><li>○ Paper Title, Tables, and Graphs are centered on the page and include proper labels with capitalization.</li><li>○ Font is 12-point Arial, Calibri, or Times New Roman with one-inch uniform margins all around.</li><li>○ Paragraphs are left-aligned and indented by 0.5 inches within a 5-page limit.</li><li>○ IEEE References are correctly formatted and numbered at the end of the report, with citations as needed in-text.</li></ul></li><li>• Always uses appropriate language</li><li>• Edited for no spelling, punctuation, or grammatical errors</li></ul>	



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Table 4.2: Content Rubric Breakdown

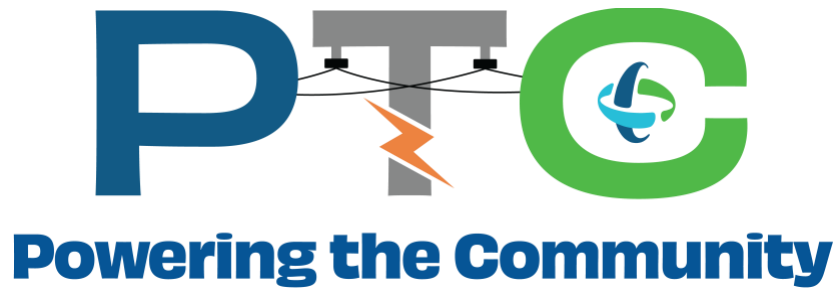
<b>Content (5):</b>	<b>Content (4):</b>	<b>Content (3):</b>	<b>Content (2):</b>	<b>Content (1):</b>	<b>Content (0):</b>
Responds to <i>all</i> prompts from the Table of Contents.	Responds to <i>all</i> prompts from the Table of Contents.	Responds to <i>all</i> prompts from the Table of Contents.	Responds to <i>most</i> prompts from the Table of Contents.	Responds to <i>some</i> prompts from the Table of Contents.	<i>Does not</i> respond to <i>any</i> prompts from the Table of Contents.
Paragraphs and information are <i>always</i> organized, connected, and flow.	Paragraphs and information are <i>always</i> organized, connected, and flow.	Paragraphs and information are <i>mostly</i> organized, connected, and flow.	Paragraphs and information are <i>sometimes</i> organized, connected, and flow.	Paragraphs and information are <i>rarely</i> organized, connected, or flow.	Paragraphs and information are <i>not</i> organized, connected, and flow.
Explanations are <i>always</i> clear, coherent, and consistent.	Explanations are <i>mostly</i> clear, coherent, and consistent.	Explanations are <i>sometimes</i> clear, coherent, and consistent.	Explanations are <i>rarely</i> clear, coherent, and consistent.	Explanations are <i>not</i> clear, coherent, or consistent.	Explanations are <i>not</i> clear, coherent, and consistent.
Information included is <i>always</i> relevant and correct.	Information included is <i>always</i> relevant and correct.	Information included is <i>mostly</i> relevant and correct.	Information included is <i>sometimes</i> relevant and correct.	Information included is <i>rarely</i> relevant or correct.	Information included is <i>not</i> relevant and correct.
New ideas are discussed.	New ideas are discussed.	New ideas are discussed.	New ideas are discussed.	<i>No</i> new ideas are discussed.	<i>No</i> new ideas are discussed.

**Table 4.3: Claims Rubric Breakdown**

<b>Claims (5):</b>	<b>Claims (4):</b>	<b>Claims (3):</b>	<b>Claims (2):</b>	<b>Claims (1):</b>	<b>Claims (0):</b>
Identifies method(s) to improve device efficiency.	Identifies method(s) to improve device efficiency.	Identifies method(s) to improve device efficiency.	Identifies method(s) to improve device efficiency.	<i>Does not</i> identify method(s) to improve device efficiency.	<i>Does not</i> identify method(s) to improve device efficiency.
Applies reported trends to current <i>and</i> future work.	Applies reported trends to current <i>and</i> future work.	Applies reported trends to current <i>or</i> future work.	<i>Does not</i> apply reported trends to current <i>or</i> future work.	<i>Does not</i> apply reported trends to current <i>and</i> future work.	<i>Does not</i> apply reported trends to current <i>and</i> future work.
<i>Clearly</i> defends and justifies why decisions were made.	Defends and justifies why decisions were made.	<i>Sometimes</i> defends and justifies why decisions were made.	<i>Rarely</i> defends and justify why decisions were made.	<i>Rarely</i> defends or justify why decisions were made.	<i>Does not</i> defend and justify why decisions were made.
Decisions and conclusions <i>always</i> are appropriate, understandable, and make sense.	Decisions and conclusions <i>always</i> are appropriate, understandable, and make sense.	Decisions and conclusions are <i>mostly</i> appropriate, understandable, and make sense.	Decisions and conclusions are <i>sometimes</i> appropriate, understandable, and make sense.	Decisions and conclusions are <i>sometimes</i> appropriate, understandable, or make sense.	Decisions and conclusions are <i>not</i> appropriate, understandable, or make sense.
<i>Clearly</i> explains and relates claims and designs back to real-life situations.	Explains and relates claims and designs back to real-life situations.	<i>Sometimes</i> explains and relates claims and designs back to real-life situations.	<i>Sometimes</i> explains and relates claims and designs back to real-life situations.	<i>Does not</i> explain or relate claims and designs back to real-life situations.	<i>Does not</i> explain and relate claims and designs back to real-life situations.

**Table 4.4: Conventions Rubric Breakdown**

<b>Conventions (5):</b>	<b>Conventions (4):</b>	<b>Conventions (3):</b>	<b>Conventions (2):</b>	<b>Conventions (1):</b>	<b>Conventions (0):</b>
Includes Team Number, Team Name, Team Member Names, Paper Title, Numbered Pages.	--Includes Team Number, Team Name, Team Member Names, Paper Title, Numbered Pages.	--Includes Team Number, Team Name, Team Member Names, Paper Title, Numbered Pages.	-- <i>Missing 1-2</i> of the listed criteria.	-- <i>Missing 3-4</i> of the listed criteria.	-- <i>Missing all</i> of the listed criteria.
--Paper Title, Tables, and Graphs are <i>always</i> centered with proper capitalization of major words.	--Paper Title, Tables, and Graphs are <i>always</i> centered with proper capitalization of major words.	--Paper Title, Tables, and Graphs are <i>mostly</i> centered with proper capitalization of major words.	--Paper Title, Tables, and Graphs are <i>mostly</i> centered with proper capitalization of major words.	--Paper Title, Tables, or Graphs are <i>sometimes</i> centered with proper capitalization of major words.	--Paper Title, Tables, and Graphs are <i>not</i> centered with proper capitalization of major words.
--Font is 12-point Arial, Calibri, or Times New Roman with one-inch uniform margins all around.	--Font is 12-point Arial, Calibri, or Times New Roman with one-inch uniform margins all around.	--Font is 12-point Arial, Calibri, or Times New Roman with one-inch uniform margins all around.	-- <i>Missing 1</i> of the listed criteria.	-- <i>Missing 2</i> of the listed criteria.	--Font is <i>not</i> 12-point Arial, Calibri, or Times New Roman with one-inch uniform margins all around.
--Paragraphs are left-aligned and indented by 0.5 inches within a 5-page limit.	-- <i>Missing 1</i> of the listed criteria.	-- <i>Missing 1</i> of the listed criteria.	-- <i>Missing 2</i> of the listed criteria.	-- <i>Missing 2</i> of the listed criteria.	--Paragraphs are <i>not</i> left-aligned and indented by 0.5 inches within a 5-page limit.
--IEEE References are <i>correctly</i> organized numerically <i>and</i> cited with in-text citations following proper formatting.	--IEEE References are <i>mostly</i> organized numerically <i>and</i> cited with in-text citations.	--IEEE References are <i>mostly</i> organized numerically <i>or</i> cited with in-text citations.	--IEEE References are <i>sometimes</i> organized numerically <i>and</i> cited with in-text citations.	--IEEE References are <i>sometimes</i> organized numerically <i>or</i> cited with in-text citations.	--IEEE References are <i>not</i> organized numerically <i>or</i> cited with in-text citations.
<i>Always</i> uses appropriate language.	<i>Always</i> uses appropriate language.	<i>Mostly</i> uses appropriate language.	<i>Mostly</i> uses appropriate language.	<i>Sometimes</i> uses appropriate language.	<i>Does not</i> use appropriate language.
<i>No</i> spelling, punctuation, or grammatical errors.	<i>Few</i> spelling, punctuation, or grammatical errors.	<i>Some</i> spelling, punctuation, or grammatical errors.	<i>Many</i> spelling, punctuation, or grammatical errors.	<i>Constant</i> spelling, punctuation, or grammatical errors.	<i>Constant</i> spelling, punctuation, or grammatical errors.



## **Part 2: Presenting Your Design:**

**Presentation Instructions:** In addition to writing your Executive Summary, you will create a PowerPoint presentation, then record a 5-7 minute video of your team presenting it, to walk your audience (the judges!) through the different aspects of your design process. You will emphasize how insights obtained from your measured and analyzed data led to the new goals and conditions you created for your smart energy management system.

This Video Presentation should demonstrate key points from your Executive Summary but also discuss your design process in more detail. Specifically, your Video Presentation should demonstrate:

- How you made new goals and planned changes in the operation of your devices from Activity 2 to Activity 3
- How these changes helped you design a smart energy management system for your specific home scenario

For more detailed information on what to include in your Presentation and how to structure it, open the “PTC\_24\_MS\_4\_Presentation Outline” PowerPoint in the “Activity 4” folder under the “Files” Section of your Teams channel. You can complete your presentation directly in that PowerPoint, but make sure to follow instructions to delete the outline slides once you have completed your presentation.

### **Saving your Presentation:**

After you have finished creating your Design Presentation PowerPoint, save it as a PDF file, named “Design Presentation\_[Team Name].pdf”. You will submit this file using the submission instructions at the end of this document.

### **Video Instructions:**

To record a video of your presentation, use Zoom, Microsoft Teams, OBS, Loom, Bandicam or any other recording platform your teacher allows. Make sure to record both the screen and audio so your team can explain your design and walk through your presentation for the audience of judges.

### **Saving your Video:**

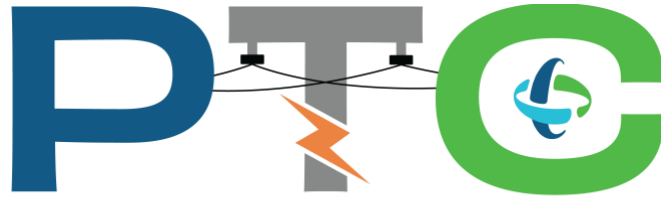
After you have finished creating your Design Presentation Video, save it as an mp4 file, named “Presentation Video\_[Team Name].mp4”. You will submit this file using the submission instructions at the end of this document.

## Design Presentation Rubric

As you create the slides for your presentation, check the rubric criteria below to make sure you're meeting or exceeding all the requirements for effectively communicating your design. For more detailed information about how your presentation will be judged, read through the rubric breakdowns that follow.

<b>Table 4.5: Rubric Criteria for Design Presentation</b>		
<b>Category</b>	<b>Criteria</b>	<b>Score (0-5)</b>
<b>Design</b>	<ul style="list-style-type: none"> <li>• Responds to all prompts and includes all outlined components</li> <li>• Clearly demonstrates data-driven design</li> <li>• Clearly explains steps of design process</li> <li>• Decisions and conclusions are appropriate, well-communicated, and apply to the context of the design.</li> <li>• Information included is relevant and accurate.</li> </ul>	
<b>Delivery</b>	<ul style="list-style-type: none"> <li>• Presentation slides and audio are always clear.</li> <li>• All group members speak during the presentation.</li> <li>• Presentation is engaging, polished, and well-rehearsed.</li> <li>• Explanations are clear, coherent, and consistent.</li> <li>• Reasoning is organized, connected, and flows well.</li> </ul>	
<b>Depiction</b>	<ul style="list-style-type: none"> <li>• Adheres to outlined formatting:               <ul style="list-style-type: none"> <li>○ Includes Team Name, Team Member Names, Presentation Title, Numbered Slides</li> <li>○ Presentation Title, Tables, and Graphs are centered on the page and include proper labels with capitalization.</li> <li>○ IEEE References are correctly formatted and numbered on a reference slide, with citations as needed on proper slides.</li> </ul> </li> <li>• Always uses appropriate language</li> <li>• Edited for no spelling, punctuation, or grammatical errors</li> <li>• Easy to read and understand images and text on slides</li> <li>• Stylistic choices such as background or font do not detract from presentation.</li> </ul>	





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Table 4.6: Design Rubric Breakdown

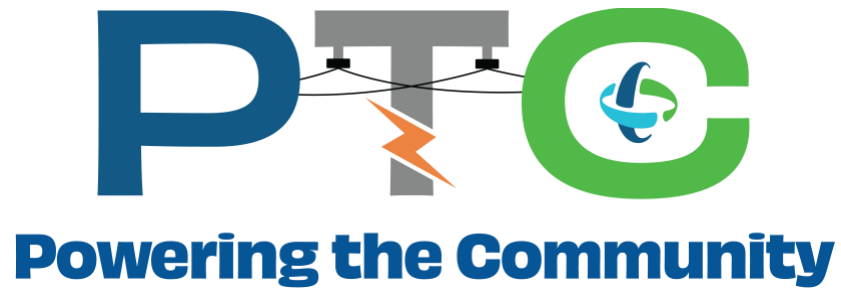
<u>Design (5):</u>	<u>Design (4):</u>	<u>Design (3):</u>	<u>Design (2):</u>	<u>Design (1):</u>	<u>Design (0):</u>
Responds to <i>all</i> prompts and follows <i>all</i> outlined reminders.	Responds to <i>all</i> prompts and follows <i>most</i> outlined reminders.	Responds to <i>most</i> prompts and follows <i>most</i> outlined reminders.	Responds to <i>most</i> prompts and follows <i>some</i> outlined reminders.	Responds to <i>some</i> prompts and follows <i>some</i> outlined reminders.	<i>Does not</i> respond to any prompts and follow <i>any</i> outlined reminders.
<i>Clearly</i> documented data-driven design.	Documented data-driven design.	<i>Sometimes</i> documented data-driven design.	<i>Sometimes</i> documented data-driven design.	<i>Rarely</i> documented data-driven design.	<i>Did not</i> document data-driven design.
<i>Clearly</i> explains design process.	Explains design process.	<i>Somewhat</i> explains design process.	<i>Somewhat</i> explains design process.	<i>Attempts to</i> explain design process.	<i>Does not</i> explain design process.
Decisions and conclusions <i>always</i> are appropriate, understandable, and make sense.	Decisions and conclusions <i>always</i> are appropriate, understandable, and make sense.	Decisions and conclusions <i>mostly</i> are appropriate, understandable, and make sense.	Decisions and conclusions <i>sometimes</i> are appropriate, understandable, and make sense.	Decisions and conclusions <i>sometimes</i> are appropriate, understandable, and make sense.	Decisions and conclusions are <i>not</i> appropriate, understandable, and <i>do not</i> make sense.
Information included is <i>always</i> relevant and correct.	Information included is <i>always</i> relevant and correct.	Information included is <i>mostly</i> relevant and correct.	Information included is <i>sometimes</i> relevant and correct.	Information included is <i>rarely</i> relevant or correct.	Information included is <i>not</i> relevant or correct.

**Table 4.7: Delivery Rubric Breakdown**

<b>Delivery (5):</b>	<b>Delivery (4):</b>	<b>Delivery (3):</b>	<b>Delivery (2):</b>	<b>Delivery (1):</b>	<b>Delivery (0):</b>
Presentation slides and audio are <i>always</i> clear.	Presentation slides and audio are <i>always</i> clear.	Presentation slides and audio are <i>mostly</i> clear.	Presentation slides and audio are <i>sometimes</i> clear.	Presentation slides or audio are <i>rarely</i> clear.	Presentation slides and audio are <i>not</i> clear.
<i>All</i> group members speak during the presentation.	<i>All</i> group members speak during the presentation.	<i>All</i> group members speak during the presentation.	<i>All</i> group members speak during the presentation.	<i>Not all</i> group members speak during the presentation.	<i>Not all</i> group members speak during the presentation.
Presentation is <i>always</i> engaging, polished, and well-rehearsed.	Presentation is <i>mostly</i> engaging, polished, and well-rehearsed.	Presentation is <i>mostly</i> engaging, polished, and well-rehearsed.	Presentation is <i>sometimes</i> engaging, polished, and well-rehearsed.	Presentation is <i>rarely</i> engaging, polished, and well-rehearsed.	Presentation is <i>not</i> engaging, polished, and well-rehearsed.
Explanations are <i>always</i> clear, coherent, and consistent.	Explanations are <i>mostly</i> clear, coherent, and consistent.	Explanations are <i>sometimes</i> clear, coherent, and consistent.	Explanations are <i>rarely</i> clear, coherent, and consistent.	Explanations are <i>not</i> clear, coherent, and consistent.	Explanations are <i>not</i> clear, coherent, or consistent.
Information is <i>always</i> organized, connected, and flows well.	Information is <i>always</i> organized, connected, and flows well.	Information is <i>mostly</i> organized, connected, and flows well.	Information is <i>sometimes</i> organized, connected, and flows well.	Information is <i>rarely</i> organized, connected, and flows well.	Information is <i>not</i> organized, connected, or flows well.

**Table 4.8: Depiction Rubric Breakdown**

<b>Depiction (5):</b>	<b>Depiction (4):</b>	<b>Depiction (3):</b>	<b>Depiction (2):</b>	<b>Depiction (1):</b>	<b>Depiction (0):</b>
Adheres to <i>all</i> outlined formatting guidelines.	Adheres to <i>all</i> outlined formatting guidelines.	Adheres to <i>all</i> outlined formatting guidelines.	<i>Missing 1-2</i> outlined formatting guidelines.	<i>Missing 3-4</i> outlined formatting guidelines.	<i>Missing all</i> outlined formatting guidelines.
<i>Always</i> uses appropriate language.	<i>Always</i> uses appropriate language.	<i>Mostly</i> uses appropriate language.	<i>Mostly</i> uses appropriate language.	<i>Sometimes</i> uses appropriate language.	<i>Does not</i> use appropriate language.
<i>No</i> spelling, punctuation, or grammatical errors.	<i>Few</i> spelling, punctuation, or grammatical errors.	<i>Some</i> spelling, punctuation, or grammatical errors.	<i>Many</i> spelling, punctuation, or grammatical errors.	<i>Constant</i> spelling, punctuation, or grammatical errors.	<i>Constant</i> spelling, punctuation, or grammatical errors.
<i>Easy</i> to read <i>and</i> understand.	<i>Easy</i> to read <i>and</i> understand.	<i>Easy</i> to read <i>or</i> understand.	<i>Hard</i> to read <i>or</i> understand.	<i>Hard</i> to read <i>and</i> understand.	<i>Hard</i> to read <i>and</i> understand.
Stylistic choices such as background/font <i>never</i> detract from presentation.	Stylistic choices such as background/font <i>rarely</i> detract from presentation.	Stylistic choices such as background/font <i>rarely</i> detract from presentation.	Stylistic choices such as background/font <i>sometimes</i> detract from presentation.	Stylistic choices such as background/font detract from presentation.	Stylistic choices such as background/font detract from presentation.



**Part 3: Submit this Activity,  
Executive Summary, Presentation PDF and Video**

- Meet with your team's mentor to check your work and make changes as needed.
- Save this document as a PDF with the title **Activity\_4\_[Team Name].pdf** and then have your **quality engineer** submit your PDF here:  
[https://ufl.qualtrics.com/jfe/form/SV\\_0020ZwvCFoQoZj8](https://ufl.qualtrics.com/jfe/form/SV_0020ZwvCFoQoZj8)
- In the submission survey, there will be additional instructions to upload your Executive Summary, Design Presentation PowerPoint, and Design Presentation Video.