SOLAR SMART HOME JUDGING

<div style="border: 2px solid red; color: red;">

TOTAL SCORE:_____

</div>

TEAM NUMBER:_____

JUDGES ROOM:_____

TEAM NAME:_____

JUDGE NAME_____

NOTE TO JUDGES:
- This form is for HS teams in the Solar Smart Home Division. MS teams with Microcontrollers should use this form as well.

Remember to be constructive – your comments will be sent directly to the coach and team after the competition.

1. **Overall feedback and comments for team:**
2. What did the team do best?
3. What should the team work upon improving the most?

Presentation (circle one point value for each category - up to 40 points)

Purpose (0-5)

```
    5                4                3                2                1                0
    |----------------|----------------|----------------|----------------|
Excellent      Pretty Good       Somewhat        Not Really          None
```

- How creative & purposeful is design?
- How well do you feel the students understand the inhabitant(s) & environment?
- How successful was the alignment between design, inhabitant(s), and environment?
- How appropriate is solar to the concept?

Resourcefulness/Ingenuity (0-5)

```
    5                4                3                2                1                0
    |----------------|----------------|----------------|----------------|
Excellent      Pretty Good       Somewhat        Not Really          None
```

- How creative is the construction and material usage? Purposeful in choices?
- How cost effective are the design choices? Was cost a main consideration in design choices?
- Are any found/reused materials significantly deconstructed and redesigned?

Aesthetics (0-5)

```
    5                4                3                2                1                0
    |----------------|----------------|----------------|----------------|
Excellent      Pretty Good       Somewhat        Not Really          None
```

- How well built is the device? Is craftsmanship evident?
- How are considerations made for the technical components?
- If the microcontroller is visible, does it fit in with the overall appearance?

World Connections (0-5)

```
    5                4                3                2                1                0
    |----------------|----------------|----------------|----------------|
Excellent      Pretty Good       Somewhat        Not Really          None
```

- How well does the project demonstrate knowledge and understanding of real-world global, environmental, and/or socio-cultural conditions?
- How well does the project design and description respond to real-world conditions and challenges?

Presentation (circle one point value for each category - up to 40 points)

Knowledge (0-5)

5	4	3	2	1	0
Excellent	**Pretty Good**	**Somewhat**	**Not Really**		**None**

- How well did the team demonstrate an understanding of solar energy utilizing appropriate concepts and terminology? Basic, age appropriate vocab and context, sophisticated and appropriate usage?
- To what extent do descriptions and explanations of circuitry include accurate rationales for choices?
- How robust is their understanding of solar energy and the larger clean energy landscape?
- Does the documentation show a thorough and detailed design process including sources, imagery, iterations, variables, and research?
- Code - to what extent was it altered and why? Did the students understand what it is doing?

Research & Documentation: Required Materials (0-10)

Documentation	Details	Complete	Somewhat	No
Solar Home Narrative	Describes purpose, design, & real-world connection	2	1	0
Solar Panel Schematic(s)	Solar panel arrangements, rated voltage & potential current for each panel, total voltage, panel dimensions	2	1	0
Wiring Diagram(s) *1 per circuit*	Symbols key & clearly label emergency switches, power storage (plus how it is being charged, and powering loads	2	1	0
Materials List	All item types and associated costs	2	1	0
Programming Code	Complete code, source, and any alterations made to code	2	1	0

Complete = **Narrative** is compelling, engaging, & robust; **Solar Panel Schematic & Wiring Diagram(**s) are clear, thorough, & reproducible; **Materials List** is clear, thorough, & costs are evident; **Programming Code** is fully provided, any alterations are identified.
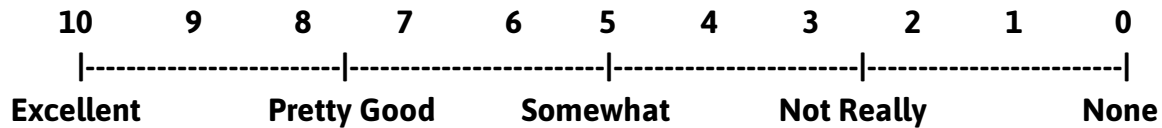
Teamwork & Delivery (0-5)

5	4	3	2	1	0
Excellent	**Pretty Good**	**Somewhat**	**Not Really**		**None**

- Was the presentation clear and succinct? Did they stay within their time limit?
- Do you feel like the students practiced their presentation? Solar home functionality?
- How well does the team work together and collaborate on the project? Did one dominate?
- Do you feel like the students "knew their stuff" or were they just reading or making it up?
- In what ways was the presentation and demonstration engaging and interesting?
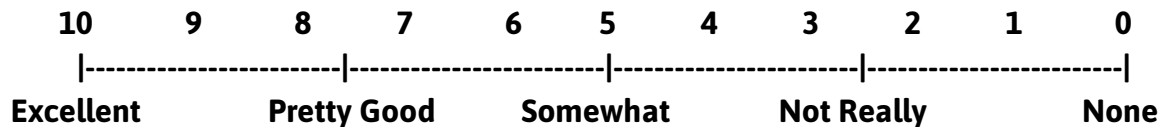- How responsive were the students to questions? Were they confident and elaborative?

PERFORMANCE (circle one point value for each category - up to 30 points)

Functionality - (0-10)

```
      10      9      8      7      6      5      4      3      2      1      0
      |---------------------|---------------------|---------------------|---------------------|
      Excellent        Pretty Good        Somewhat        Not Really        None
```
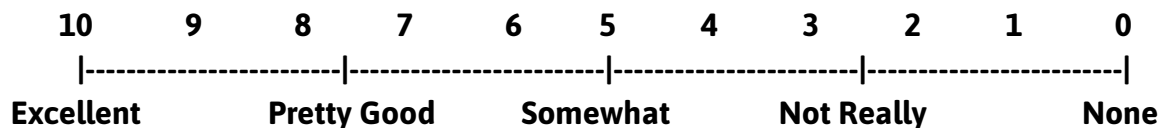
- Did the team point out the emergency switches, activating them and showing how each performs?
- To what extent does the project function as intended?
- Is each circuit essential to the function of the device? Relevant to the purpose?
- How well does the project function in the testing environment?
- Did the project require adjustments outside of the initial setup time?
- Is there a "Wow Factor" to the project directly from what is powered? Are the powered loads interesting?
- Does the microcontroller have a function separate from being a required part?

Loads & Switches (0-10)

```
      10      9      8      7      6      5      4      3      2      1      0
      |---------------------|---------------------|---------------------|---------------------|
      Excellent        Pretty Good        Somewhat        Not Really        None
```

- To what extent do circuits demonstrate consideration for loads, switches, & storage?
- Are the emergency switches easily accessible? Clearly labeled? Functioning?
- How well did the team meet that all loads must be powered by solar panels even indirectly with any power storage additions?
- Do all components fall under the maximum allowable ratings?
- Could the same function the microcontroller provides be easily provided by other components? Is the function of the circuit with the microcontroller only possible due to the microcontroller and programming in the design?

Circuitry Complexity & Integration (0-10)

```
      10      9      8      7      6      5      4      3      2      1      0
      |---------------------|---------------------|---------------------|---------------------|
      Excellent        Pretty Good        Somewhat        Not Really        None
```

- To what extent are the load(s) and switch(es) accessible, purposeful, functional, and well-integrated? The microcontroller?
- Is the circuitry organized in a neat and orderly fashion that lends to the design of the device?
- Are the emergency switches integrated into the design in a way that is aesthetic and purposeful for the build? Thought out and well located?
- Was the level of simplification for each circuit in the design a consideration made? Necessity?
- Is the microcontroller integrated into the design in a way that is aesthetic and purposeful for the build? Thought out and well located?