

An Automated Scoring System and Deliverables

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Classifications of the measurement items

Monitored	Recorded Manually Task	Juried	
Temperature, 6-1	Clothes Washer, 7-3	Architecture, 1	
Humidity, $6-2$	Clothes Drying, 7-4	Market Appeal, 2	
Refrigerator, 7-1	Dishwasher With Irreversible Thermometric Paper, 7-5	Engineering, 3	
Freezer, 7-2	Cooking, 7-6	Communications, 4	
Energy Production, 10-1	Lighting, 8-1	Innovation, 5	
Energy Consumption, 10-2	Hot Water, 8-2	Home Electronics, 8-3	
Environment Menitoring Public	Commuting, 9	Dinner Party, 8-4	
		Movie Night, 8-5	

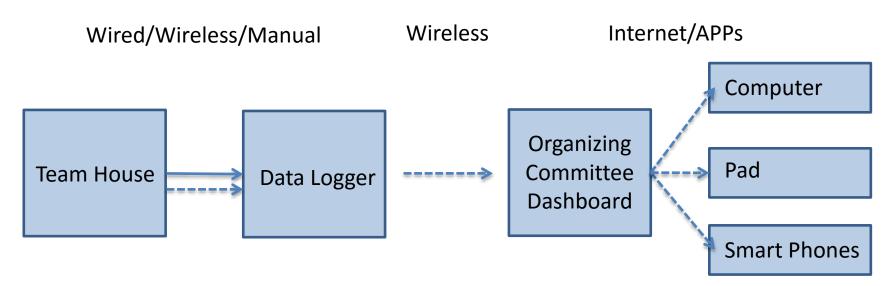


Monitored Performance Sub-contests

- Sub-contest 6-1: Temperature
 Keep zone(s) temperature in 71° F to 76° F (22° C to 24° C) range
- Sub-contest 6-2: Humidity
 Keep zone(s) relative humidity below 60%
- Sub-contest 7-1: Refrigerator
 Keep refrigerator temperature in 34° F to 40° F (1° C to 4° C) range
- Sub-contest 7-2: Freezer
 Keep freezer temperature in -20° F to 5° F (-29° C to -15° C) range
- Contest 10: Energy Balance
 Produce at least as much electrical energy (kWh) as is consumed during contest week



Automated Scoring System Logic Diagram



Sensor and Instrumentation

- Data Logger
- Temperature and Humidity Sensors
- Flow Meter
- Power Meter
- Scales (Kitchen and Towel Scales)
- Irreversible Thermometric Paper

Dashboard

- Manual Scoring
- Table Scoring
- Monitoring Scoring

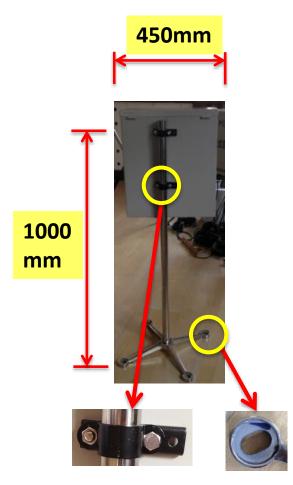


Data Logger

- Data Location
 - One data logger will be mounted in each house Mechanical Room,
- Collection Process
- Data logger reads sensors, averages/totals sampled data, and stores official 15-minute data.
- Central Solar Decathlon server collects data from each house and processes data to create scores
- Organizers monitor and review scoring to ensure accuracy, availability, and accessibility
- Power Supply
 - The data logger need 220V AC, Power 3 holes, 1m cable
- Monitoring
- The data will be collected by computer in every 15 minutes through this data logger



Mounting system



Teams shall not tamper with this equipment!!!

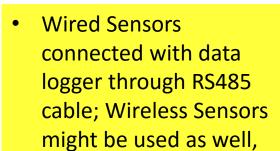
Temperature and Humidity Sensors

Refrigerator and Freezer

ventilation hood



Sensor



There are at least 2 sensors in each house.









Freezer

Protection

- The cable inside is much thinner than outside,
- The temperature sensor has a protection outside for preventing the temperature changed quickly.





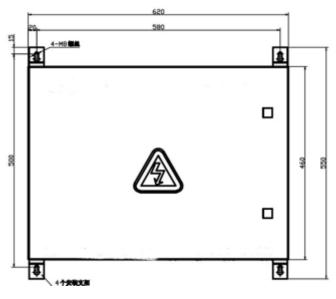


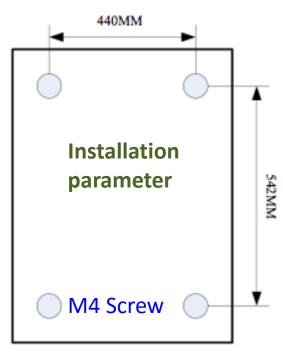
A team may be penalized for tampering with this this equipment.

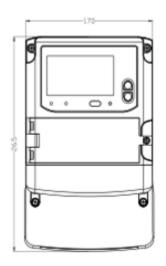
Meters

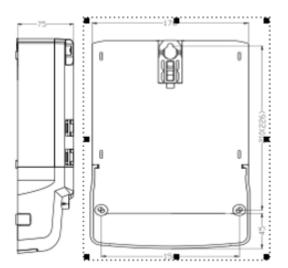












- -Every meter has a meter box to protect the safety.
- -Every meter box has a meter and a switch.
- -Every meter connect with datalogger with wireless or RS485 communication cable.



Dashboard

- Right Level
 - -Team (team)
 - -Jury (judge)
 - -Competition Manger(auditor)
- Function
 - -Scoring
 - -Weather information
 - -Total score ranking





Revised Version

TIME	CONTENT
18. July. 2016	Schematic Design
15. Aug. 2016	Feedback from Committee
Nov. 2016	Design Development
Jan. 2017 (TBD)	Second Technical Training Workshop
Feb. 2017	Construction Document
Apr. 2017	Concrete Foundation Document
17. July. 2017 (Tentative)	Competition Begins



Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Registration 8 am - 9 pm	Registration 8 am - 9 pm All Team Meeting 2 pm - 4 pm	Stand-Alone Assembly Begins at 7 am	Impound (12 am - 7 am) Stand-Alone Assembly	Impound (12 am - 7 am) Stand-Alone Assembly	Impound (12 am - 7 am) Stand-Alone Assembly	Impound (12 am - 7 am) Stand-Alone Assembly
Day 8	Day 9	Day 10	Day 1 1	Day 12	Day 13	Day 14
mpound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)
Stand-Alone or Grid-Tie Assembly	Stand-Alone or Grid-Tie Assembly	Stand-Alone or Grid-Tie Assembly	Stand-Alone or Grid-Tie Assembly	Stand-Alone or Grid-Tie Assembly	Stand-Alone or Grid-Tie Assembly	Stand-Alone or Grid-Tie Assembly
Day 15	Day 16	Day 17	Day 1 8	Day 19	Day 20	Day 21
Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	
			Final Site Cleanup,	REST DAY	Contests	Contests
Stand-Alone or Grid-Tie Assembly	Grid-Tie Assembly	Staging and Signage	House Photograph	Opening Ceremony		
		Stop Work for Final	Opening Ceremony Rehearsal	All-team Photo	•	
			Inspections	Team Open House	VIP Tours	Public Exhibit
Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28
Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)
Contests	Contests	Contests	Contests	Contests	Contests	Contests
Jury Walk-throughs Jury Walk-throughs	Jury Walk-throughs	Public Exhibit	Public Exhibit			
			Market Appeals and Engineering Results	Public Exhibit	Public Exhibit	
				Team Open House		
Day 29	Day 30	Day 31	Day 32	Day 33	Day 34	Day 35
mpound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	mpound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)	Impound (12 am - 7 am)
Contests	Contests	Contests	Public Exhibit	Public Exhibit	Site Cleanup	Final Inspection
Public Exhibit			r doile Exhibit	r abiic Exhibit	Site cleanup	r mar mspection
Architecture and Innovation Results	Public Exhibit	Public Exhibit Communications Result	Final Awards Ceremony			
minovation results		communications result				



SOLAR DECATHLON

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