

Capstone - Part 1

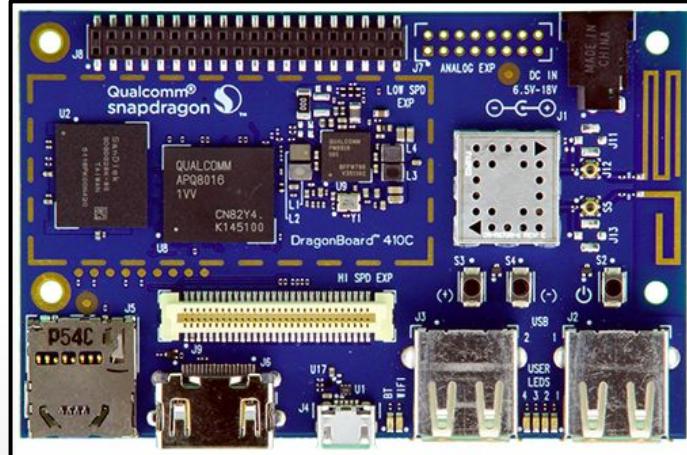
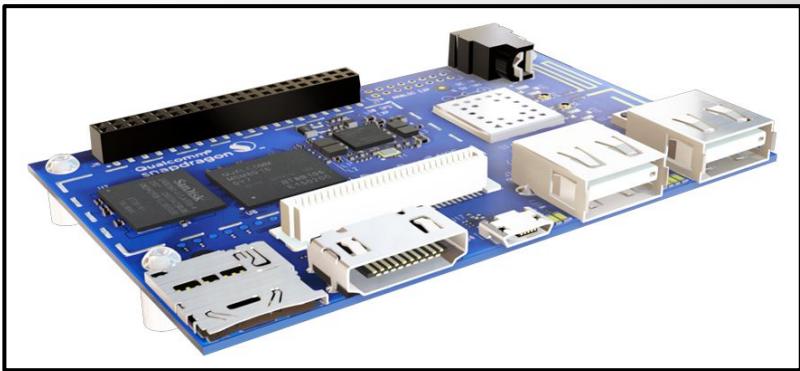
Self sustainable workstation and surveillance

Capstone pt.1 | Self Sustainable workstation and surveillance

1 - Approach

2 - System Components

3 - More examples



BREAK

Q:?

a).

b).

c).

d).

e).

1 - Approach

1 | Approach

1 - Research major system components

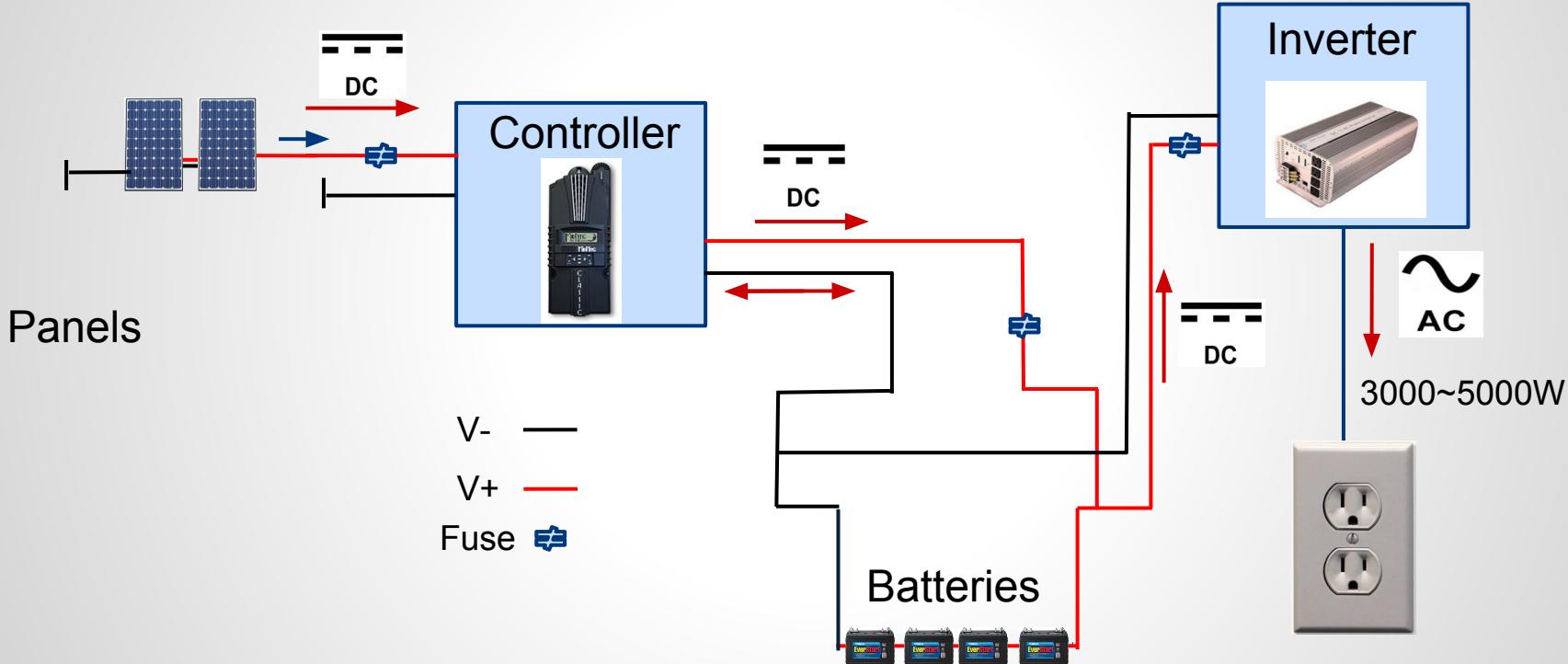
2 - Research DC components

3 - Purchase system components

4 - Build solar station

5 - Set up DragonBoard™ 410c

1 | Approach



BREAK

Q:?

a).

b).

c).

d).

e).

2 - System Components

2 | System Components



- Eco-Worthy Solar Panels
- $P_{MAX} = 10 \text{ W}$
- $V_{OC} = 20.6 \text{ V}$
- $I_{SC} = 0.69 \text{ A}$
- 1 alone or 2 in parallel
- $I_{SC,TOTAL} = 1.38 \text{ A}$



- Esky Intelligent Charge Controller
- Max PV $V_{OC} = 40 \text{ V}$
- Max PV $I_{SC} = 30 \text{ A}$

2 | System Components



- Smart&Cool Inverter
- $V_{IN} = 12 \text{ VDC}$
- $V_{OUT} = 110 \text{ VAC}$
- $P_{OUT} = 350 \text{ W}$



- ExpertPower Battery
- Model EXP12180
- 12 V, 18Ah
- 11.7lb
- 3 x 7.1 x 6.6 inches

2 | System Components



2 | System Components

SPECIFICATIONS			
DIMENSIONS			
Assembled Depth (in.)	15.6 in	Assembled Width (in.)	24.57 in
Assembled Height (in.)	16.38 in	Handle Length (in.)	16
DETAILS			
Color Family	Black	Returnable	14-Day
Color/Finish	Black	Tool Storage Product Type	Tool Box
Holding Capacity (cu in.)	3465	Tools Product Type	Tool Storage
Lid Strike	Yes	Tray Included	Yes
Lockable	Yes	Water Resistant	Yes
Material	Polypropylene	Weight Capacity (lb.)	88
Number of Shelves	1	Welded Seams	No
Padded handle	Yes	Wheels	Yes

3 - Another example

3 | More examples

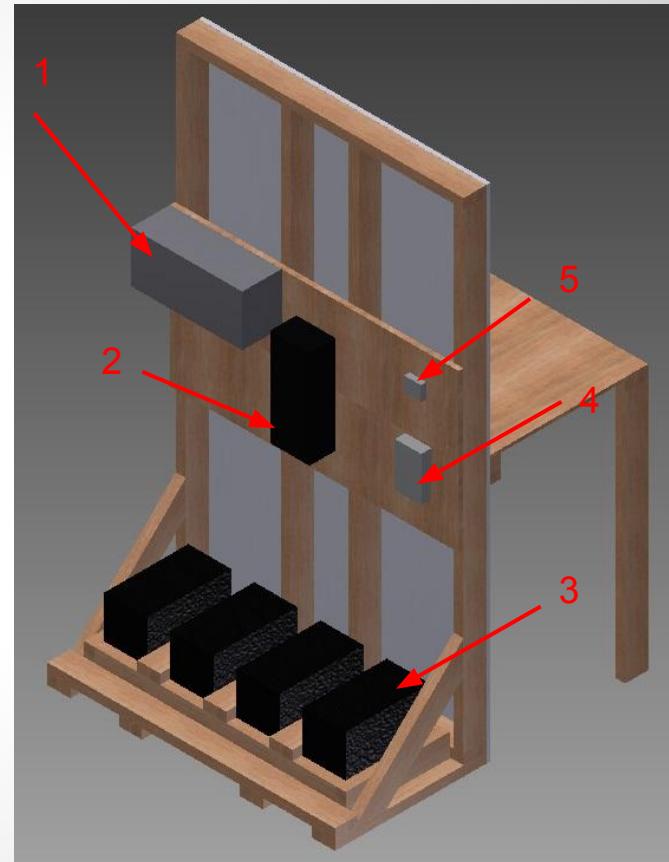
1 - Inverter

2 - Charge controller

3 - Battery pack

4 - 12V regulator

5 - 5V regulator



3 | More examples

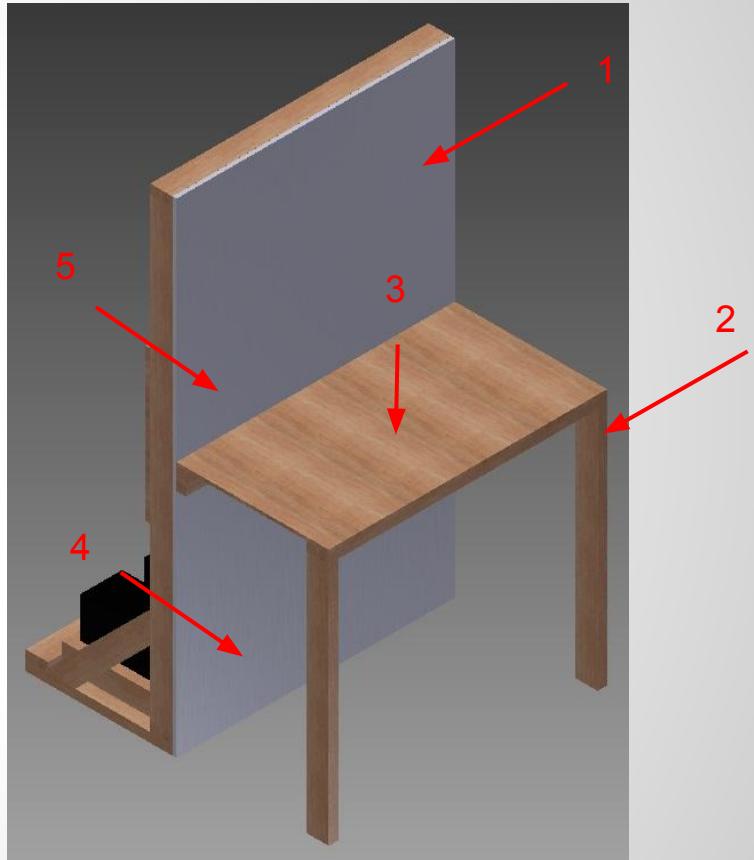
1 - Drywall

2 - Workbench

3 - Computer station

4 - AC wall sockets

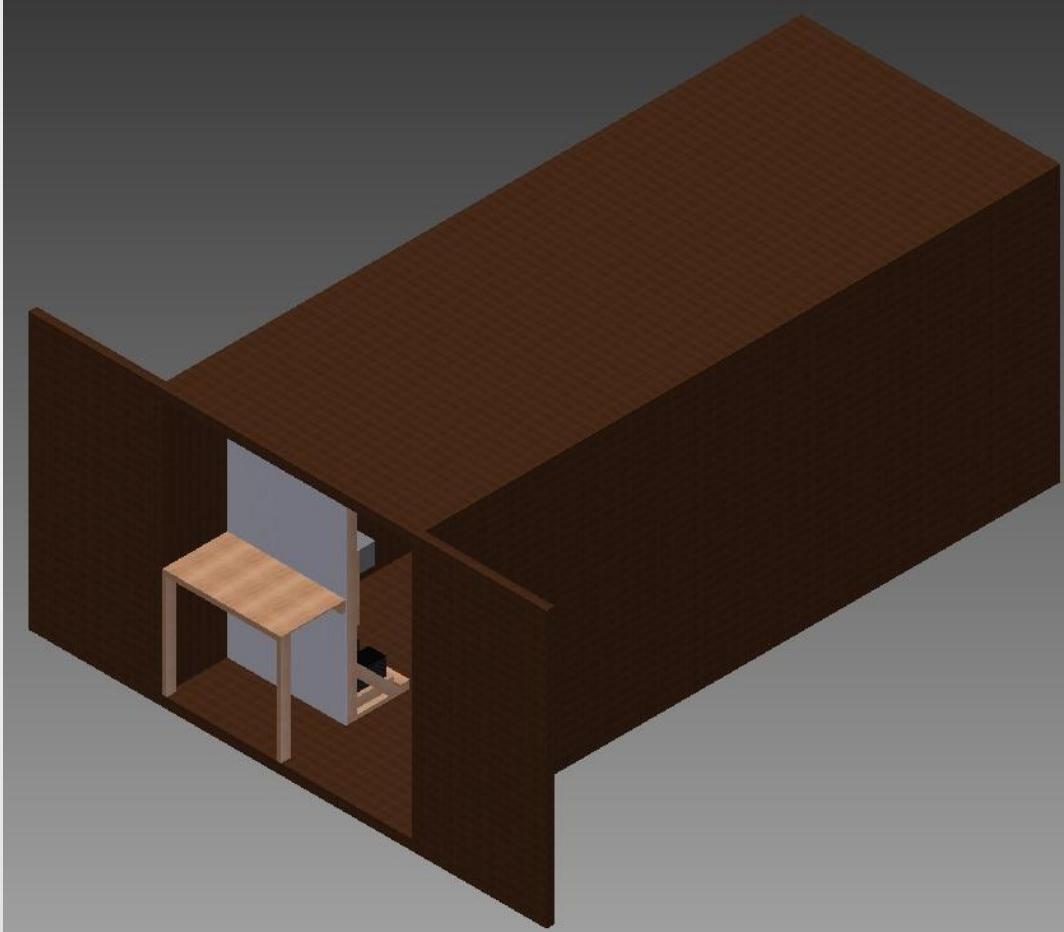
5 - DC wall sockets



3 | More examples



3 | More examples

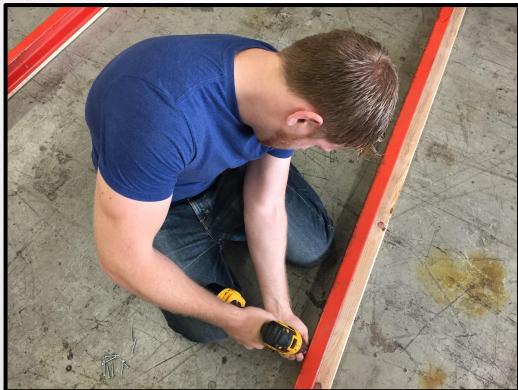
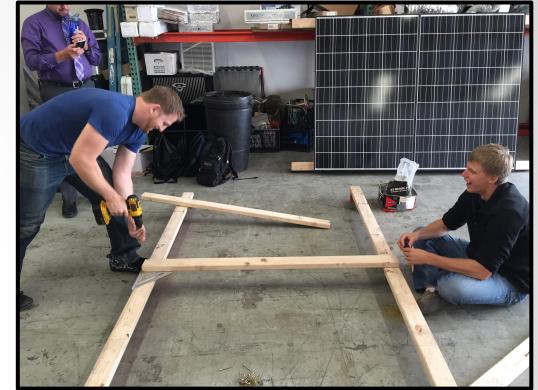


3 | More examples

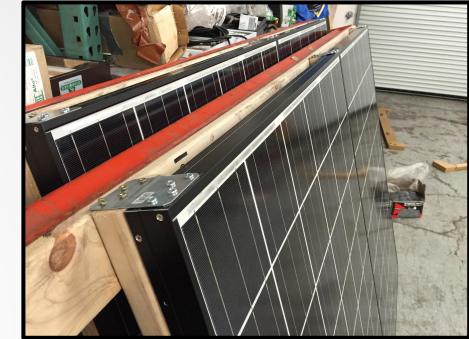


Dimensions: 8' x 8' x 20'

3 | More examples



3 | More examples



- 4 solar panels in series
- 2 per structure

3 | More examples



3 | More examples



3 | More examples



3 | More examples



3 | More examples

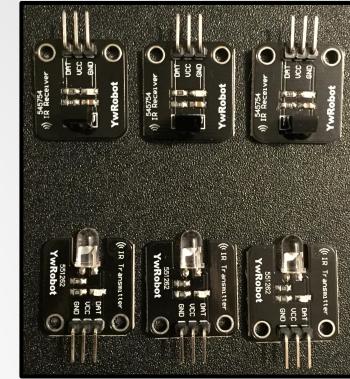
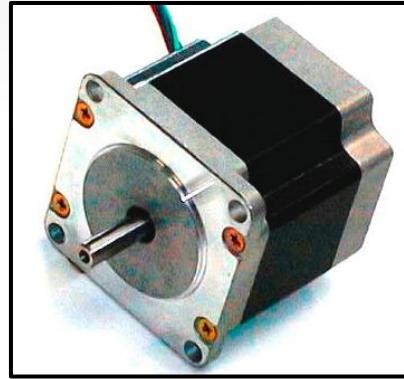


3 | More examples

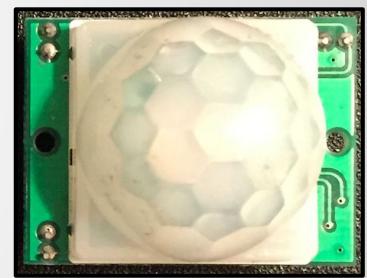


3 | More examples

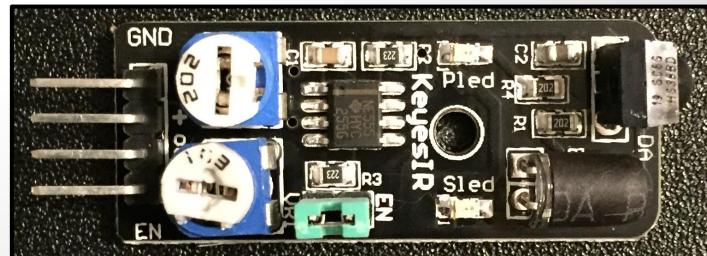
1 - RF identification



2 - Passive infrared sensors



4 - Stepper motor



5 - Infrared Remote control

Capstone pt.1 | Summary + A Look Back

1 - Approach

2 - System Components

3 - More example

