

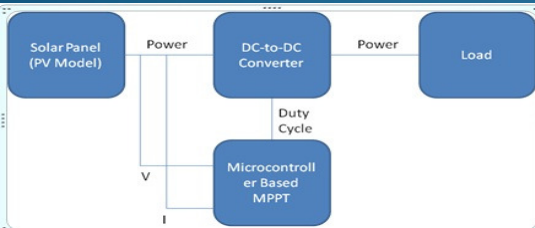
Design and Implementation of Microcontroller-Based MPPT

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project Objective

to maximize the power output from a Photovoltaic system

Using maximum power point tracking (MPPT).



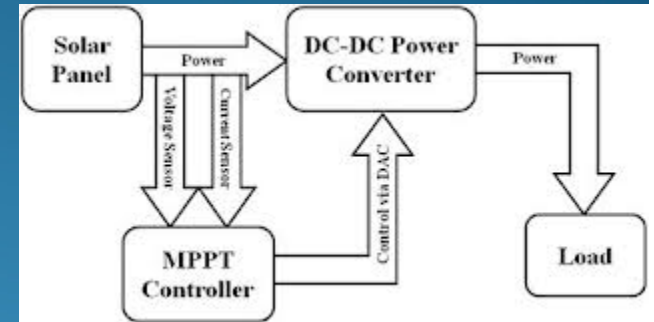
Microcontroller

- is a small smart computer on a single integrated circuit that contains the following items memory
- different inputs:
- **Power Radiation . Temperature.**



How Peak Power Is Tracked?

- By matching impedance of load and solar module
- Dc-Dc converter is used as Interface between solar module and load

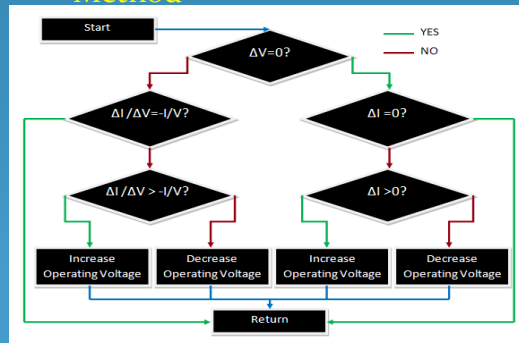


P-V Characteristics

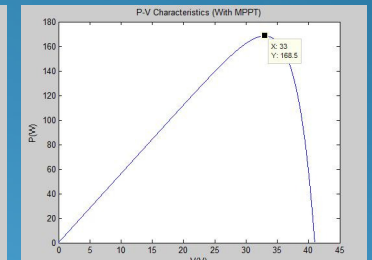
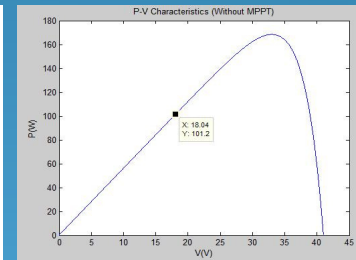
- $P(\max) = 100\text{w}$
- $I(\max) = 2.25\text{A}$
- $V(\max) = 18\text{V}$
- $I(\text{sc}) = 3.76\text{A}$
- $V(\text{oc}) = 21.96\text{V}$

MPPT

Incremental Conductance Method



Results



Without MPPT

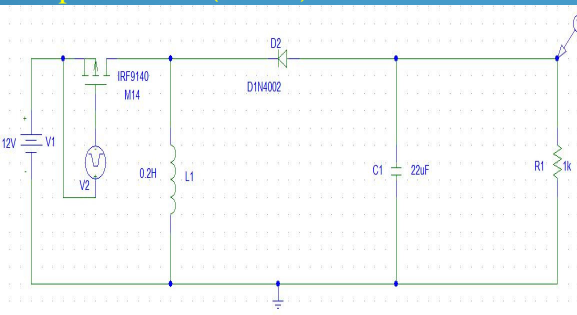
With MPPT

Team member

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- Fahd Al-Mutairi 200880860
- Khaled Al-Gahtani 200819700
- OthmaAlmatrafi 200842680
- Rakan Al-Luhaib 200882600

buck-boost converter

It's basically a DC-to-DC converter that steps up (boosts) the input voltage or steps it down (bucks).



```

E = 1000.000000 I = 25.000000 V1 = 5.000000
results are :
D = 0.779639
U = 17.690000
I = 3.415298
P = 60.416617
Press any key to continue . . .
    
```