**SOLAR COOKER SOLAR TRACKERS**

**ABSTRACT:**

Solar cookers usually don't require a tracker that moves in both in directions. The person operating the cooker simply resets the cooker to the East when loading the food. The tracker then drives to the West stopping when aimed at the Sun.

The great simplification to these designs is the elimination of the H-bridge in the output circuit. These only need a single MOSFET transistor to drive the motor. LEDCooker1 was designed several years ago, mayby 10 years or so, using the [IRLZ44N](http://www.redrok.com/MOSFET_IRLZ44N_55V_47A_22mO_Vth2.5.pdf) logic level MOSFET. Basically designed before cheap BLUE LEDs were available. I had experimented with the BLUE ones but abandoned the project because the circuit seemed too expensive for solar cookers, especially for 3rd world country applications. LEDCooker2 satisfies my requirement for low parts cost at about $3us. Can I improve this further?

Instead of the 10mm [Lumex](http://www.lumex.com/) [LEDs](http://www.lumex.com/products/detail/standard50) I usually use, which are more expensive, We changed to 5mm types and the newer [IRLI2203N](http://www.redrok.com/MOSFET_IRLI2203N_30V_61A_7mO_Vth2.5_Insulated.pdf) MOSFET, $1.70 30V 61A 7mΩ 2.01Vth. Even better, its in a TO-220 Fullpack package, which means the heatsink tab is insulated. The hole in the MOSFET can be used for mounting to the cooker, or a heatsink for driving larger motors, without regards to electrical connections and shorts. I.e. the whole circuit is floating.

OK, for the absolute lowest cost one can use the 3 color version. I probably would choose to use BLUE for all three LEDs because of the greater bias voltage for more safety margin especially in high ambient temperature locations.

These have water clear cases.An even lower cost and parts count solar cooker tracker can be made with a TO-92 package [ZVNL120A](http://www.redrok.com/MOSFET_ZVNL120A_200V_180mA_10O_Vth1.5_TO-92.pdf) MOSFET, $0.78 200V 180mA 10Ω 1.35Vth. This circuit requires LED2 to be BLUE and LED1 can be any color even infra red. Both LEDs are required to obtain a balance point. Of course the [ZVNL120A](http://www.redrok.com/MOSFET_ZVNL120A_200V_180mA_10O_Vth1.5_TO-92.pdf) would only work with quite small motors. A possibly better use is as a solar sensor.

**CIRCUIT DIAGRAM:**

 

 

