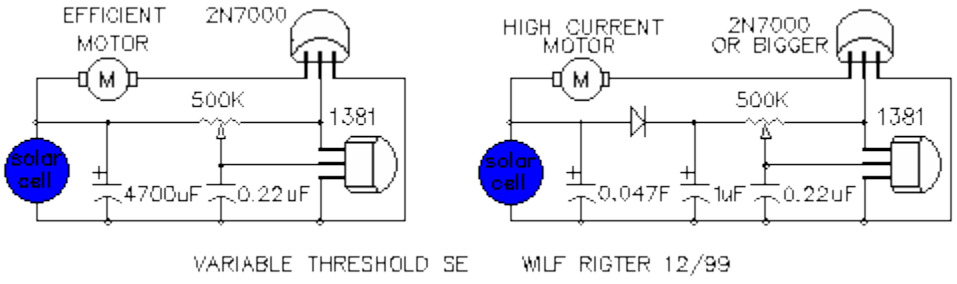
# THE VTSE SOLAR ENGINE

The VTSE is Wilf Rigter's take on an improved 1381-based solar engine. Since Wilf's done a lot of tinkering on this, the following diagrams and text come straight out of his posts.




The VTSE uses the popular 1381 chip and that is its main advantage. The potentiometer (or two fixed resistors) connects one leg between the output and input of the 1381 and the other leg to the supply voltage. These resistors acts like a voltage divider when the SE is off and the 1381 output is low. In that case, the voltage that appears at the 1381 input is determined by the ratio of the pot or the two resistors and is usually set for 2 times rated 1381 voltage.

Using a 3V 1381 [this'd be a 1381L, ed.], when the supply capacitor reaches 6V, the input of the 1381 is at 3V and the 1381 turns on.

When the 1381 output goes high, the pot no longer acts as a volatge divider and the full supply voltage appears at the input and output pins of the 1381 chip which turns on the FET and supplies current to the load. When the supply capacitor drops to 3V, the 1381 shuts off and the pot once again becomes a voltage divider, and the cycle repeats.

| Parts list for basic circuit | | | |
|---|---|---|---|
| Part | Solarbotics | Digikey | Radio Shack |
| Storage capacitor | various | various | various |
| Solar cell | various | N/A | N/A |
| 500 KOhm var. resistor | | | |
| 0.22 uF capacitor | | | |
| 0.47 uF capacitor | | | |
| 1 uF capacitor | | | |
| Diode (small signal) | | | |
| 2N7000 FET | | | |
| 1381* IC | | | |

Source: http://www.solarbotics.net/library/circuits/se_t1_vtse.html