

# ezSystem elab16m Project 5s: Smart Light Dimmer

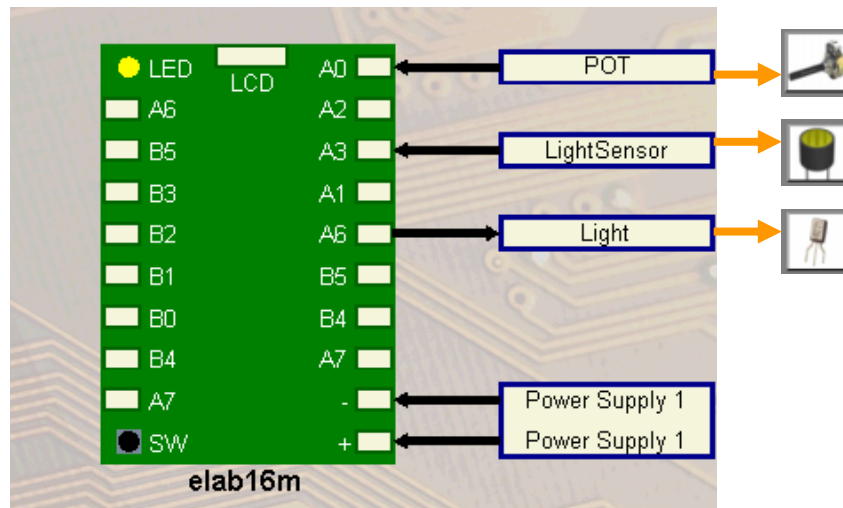
## Project description:

The project is a smart light dimmer to save power that uses the elab16m, a LED, a Light Dependent Resistor and a potentiometer.

The amount of light emitted by the LED is controlled by the potentiometer by changing the on/off duty cycle at a high frequency. Duty Cycle means the percentage of ON-Time compared to the Period (ON-Time and Off-time). This is called Pulse Width Modulation (PWM).

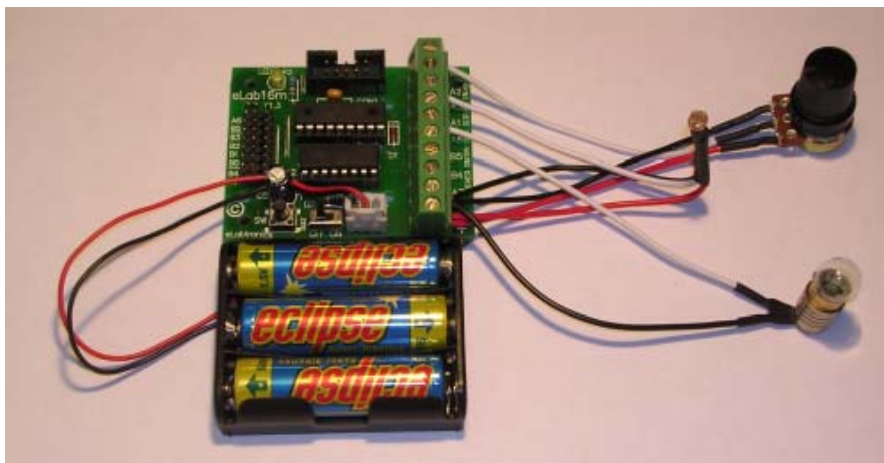
## 1. Design the Smart Light Dimmer

Use ezCircuit Designer to construct an input/output (I/O) diagram



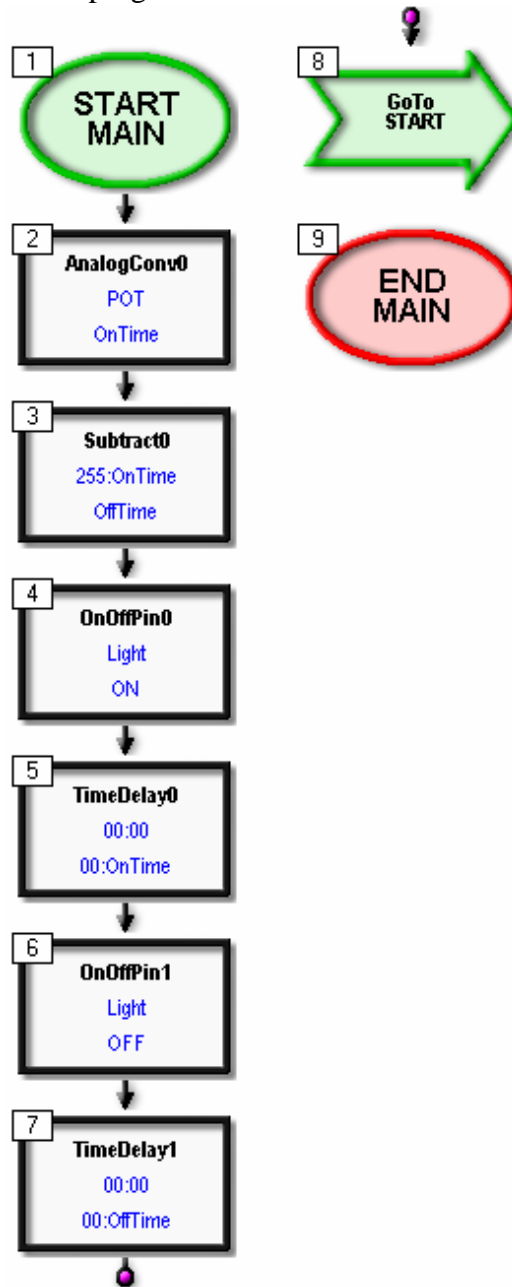
## 2. Build the Smart Light Dimmer

Use ezCircuit Designer I/O diagram to connect the hardware



### 3. Program the Smart Light Dimmer

Use ezCoreChart to program the functions of the smart light dimmer



#### Extension

Use a Light Dependent Resistor to reduce the brightness of the smart light to save power.

1. Modify the smart light dimmer program so that the light sensor is used to control the brightness of the light. The smart light LED brightness will be reduced when there is a high level of ambient light and the brightness will be increased when there is a low level of ambient light.

**Hint:** Pot Setting = Pot Setting – Ambient Light Level from LDR.