

## **Open Ended Project : Phototransistor-resistor Voltage Divider Circuit**

**EE 1322**

Group : 2

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**Design Description:** A phototransistor-resistor voltage divider circuit driven by the +15VDC supply of the myDAQ. This circuit will detect three different lighting states: ambient room light, brighter than ambient, and even brighter.

### **Design Overview/Description:**

The design project proposal herein demonstrates the phototransistor using the MyDAQ and LabVIEW. A photoresistor is a semiconductor that changes its electrical resistance when exposed to light.

Firstly, we used DAQassist followed by an indicator while building the code. We also implemented the logic gates such as EXOR, AND, and Comparison gates to test the voltages.

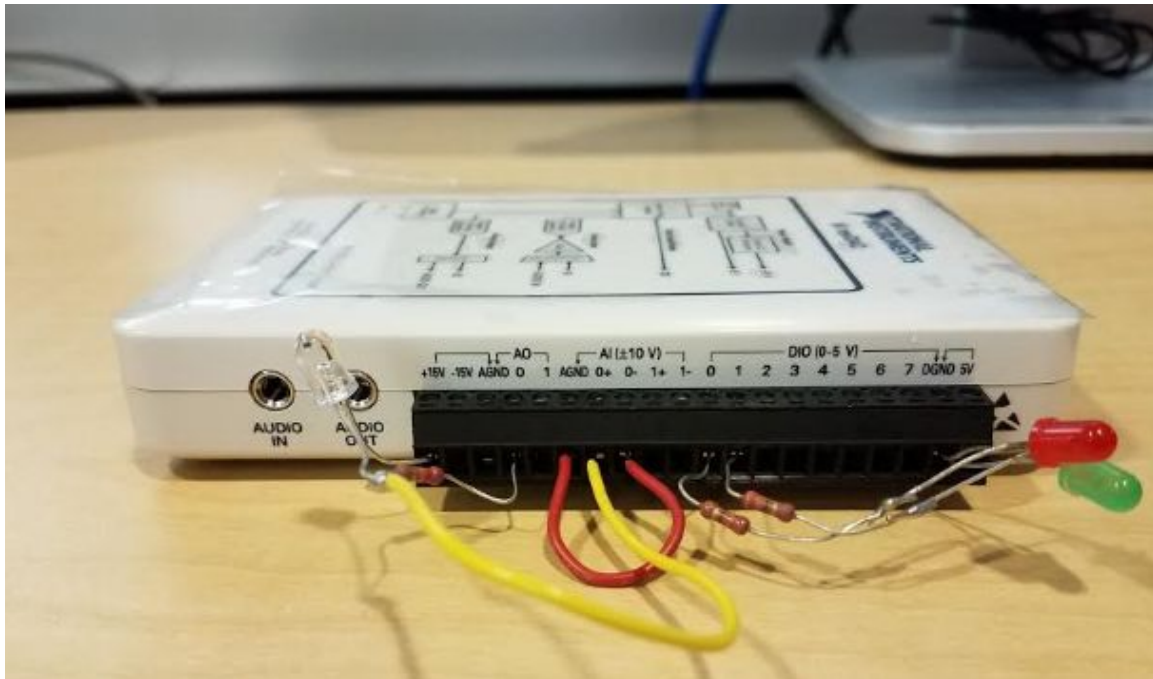
The application of an EXOR gate and an AND gate is to test the outputs of our comparison gates, giving an output of 1 or 0 to turn on or off the red and green LED's. For a low level of light we left both lights off, for a range between 0V and 5V we turned on the green LED, and anything above 5V we turned on the green LED, in order to show a change between light levels.

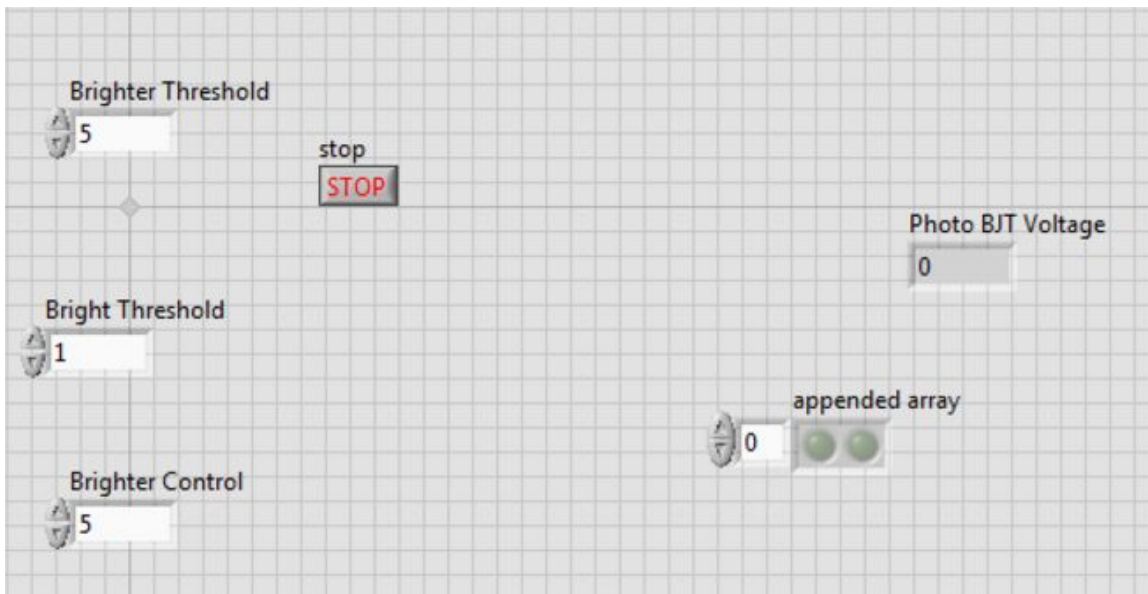
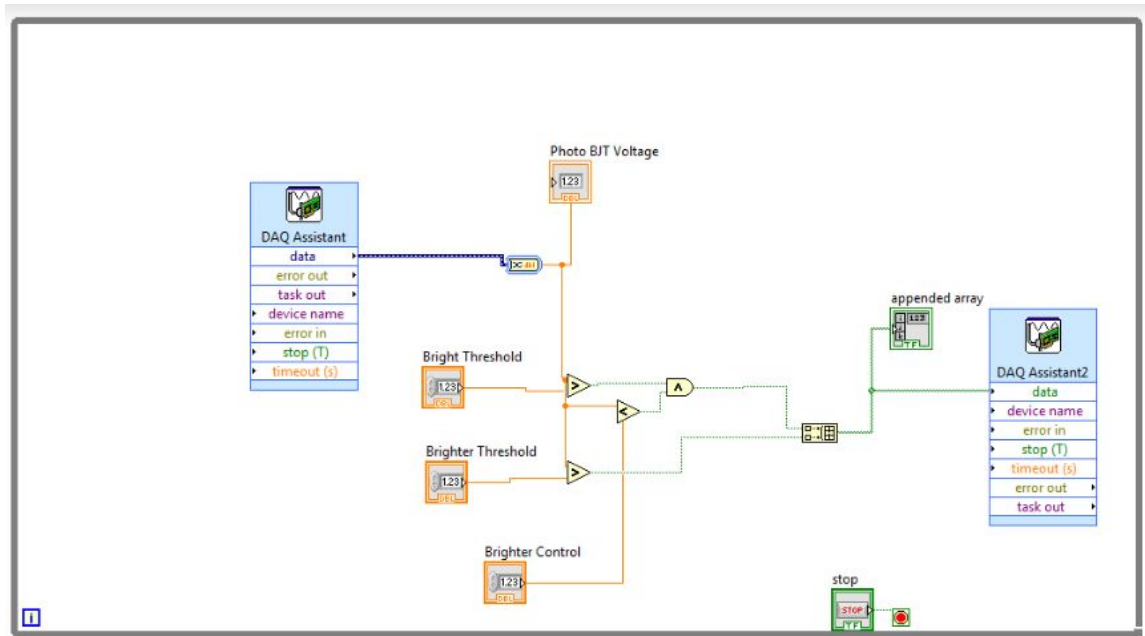
In conclusion, we enclosed all of schematics in a while loop in order to keep the circuit running, continuously updating the output.

### Application:

Since the project is about a light dependent resistor, "a common application of it would be to dim an LED automatically in a dark place, and brighten it when it is in daylight so that it is visible, or perhaps just turn on the light when it is dark. It is possible that the resistance outcomes may vary in accordance to the different lighting cells."

### Implementation of Graphics/Schematics on Diagram:





### Challenging Things about the Project:

1. Allocating time to meet.
2. Implementing the gates logically.

**Interesting things about the Project:**

1. Learning the comparison gates.
2. Building the logic.