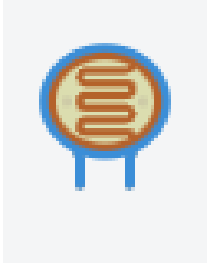
Project Details

Automatic switching on the lightbulb – read the ambient light intensity (using a photo resistor). If intensity is low then switch on the bulb.

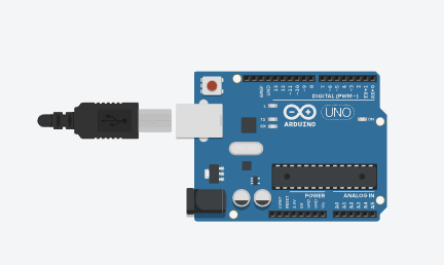
Components used and its description

Name	Quantity	Component
U3	1	Arduino Uno R3
R2	1	1 kΩ Resistor
R3	1	Photoresistor

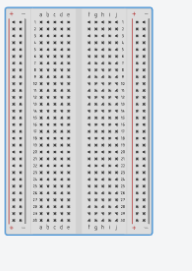
Resistor



Photoresistor

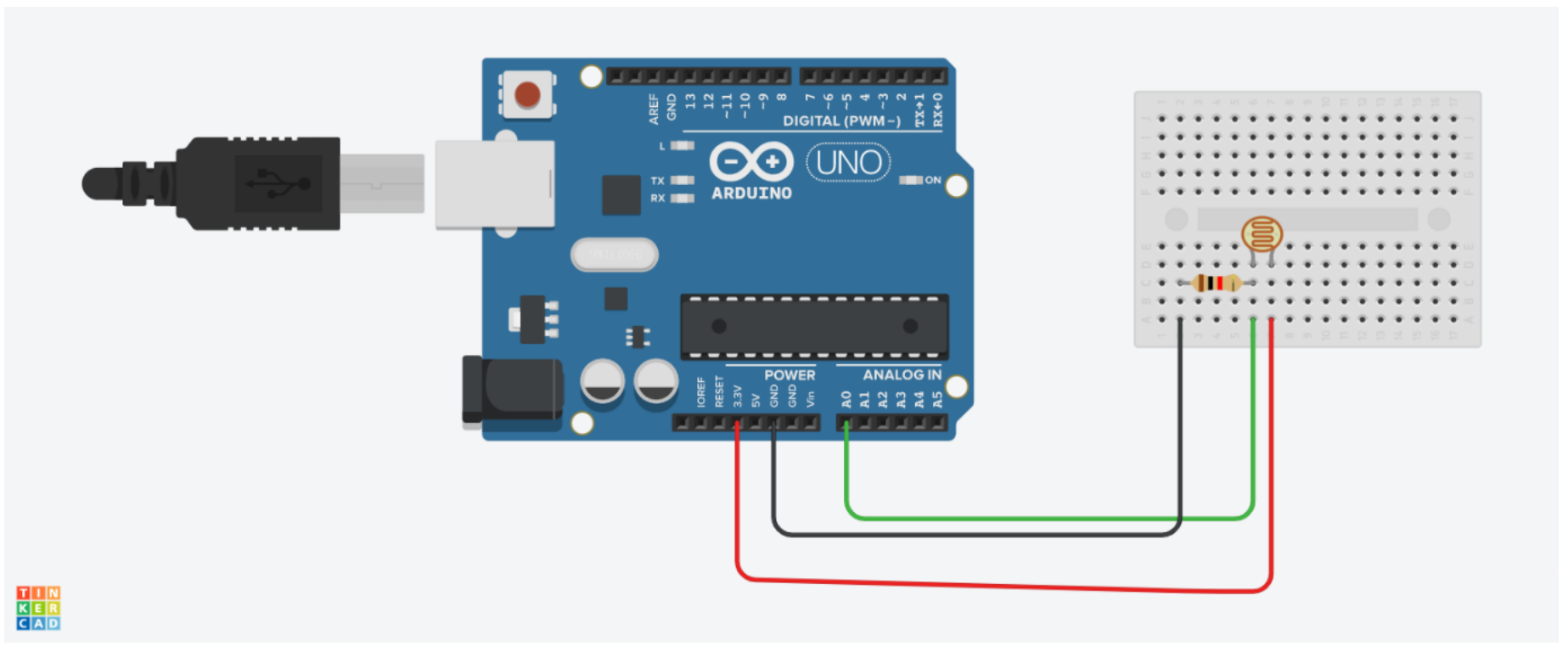


Arduino Uno

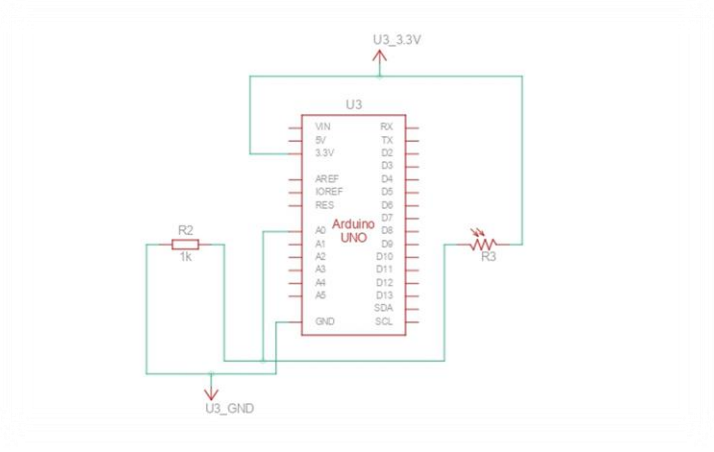


Breadboard

Circuit diagram

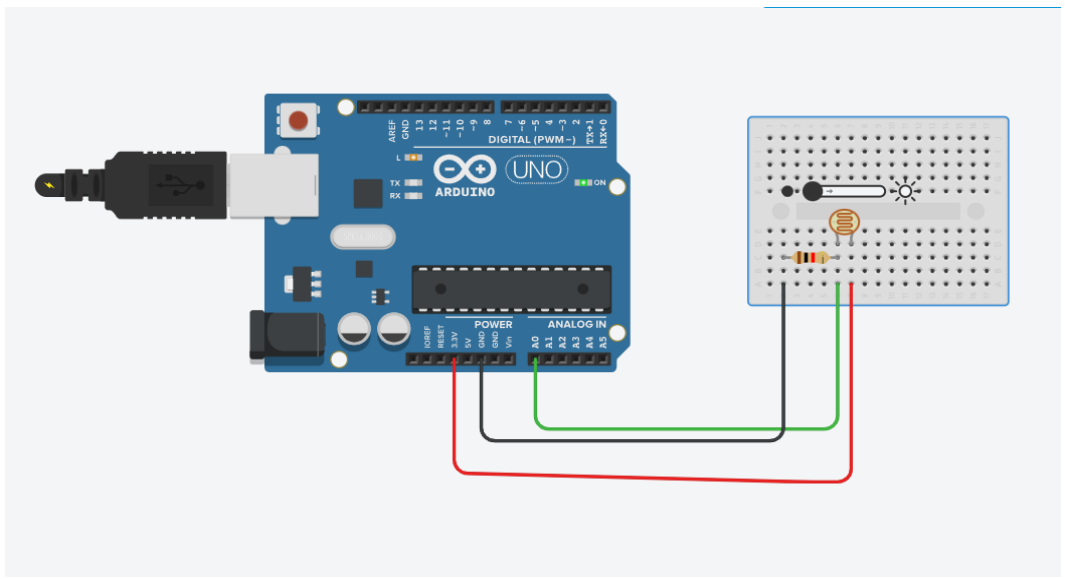


Schematic Diagram

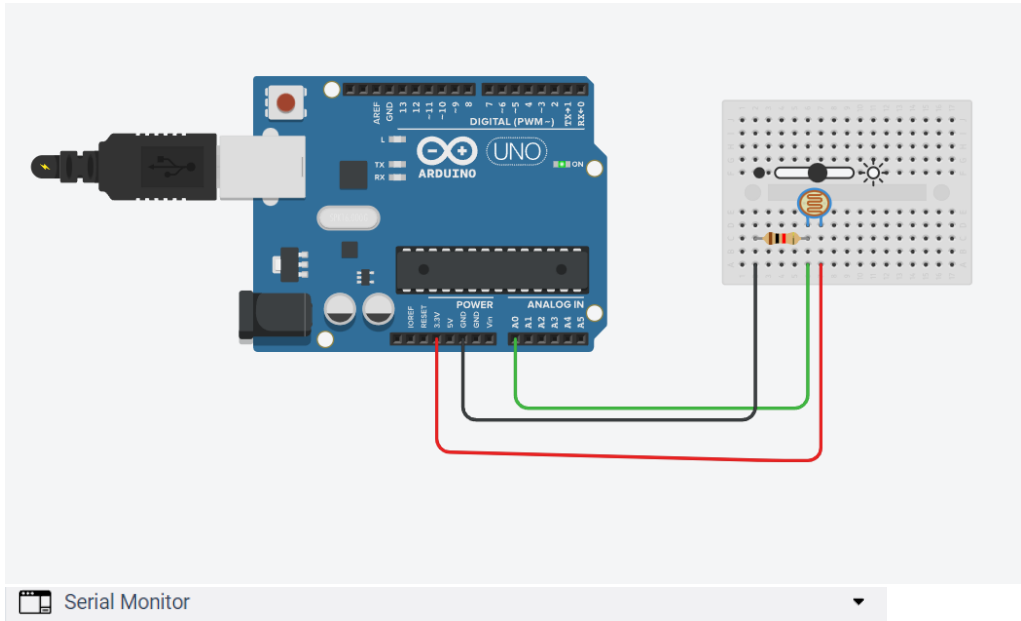


Simulation Results :-

If light intensity is below a certain limit, then photoresistor senses it and immediately the light bulb glows up. If light intensity increases above it, bulb diminishes.



Here intensity printed on serial monitor is 78 which is less than 200 so the built-in LED glows and light bulb lights up.



Here intensity printed on serial monitor is 364 which is greater than 200 so the built-in LED stops glowing and light bulb stops lighting.

Any other applications with the components (optional)

Smart Bulb and Smart Fan can be made.

Conclusion

Photo-resistor detects any change intensity of light and lights up the light bulb and lights up the LED if intensity is below a certain value.

References

https://www.arduino.cc/

https://www.arduino.cc/reference/en/

https://create.arduino.cc/projecthub/DCamino/ambient-light-sensor-using-photo-resistor-and-led-lights-9b7f39

https://youtu.be/qKku-mmwNIA