# Laboratory 5: The Nerd

### Required Equipment

### Phototransistor

### RGB LED

### 220 ohm Resistor

### Buzzer

### Battery

### Breadboard

### Wires

### 2 mm Cardboard

### Required Programs

* Arduino Desktop Application with the following libraries:
  + WiFi101 –connects to the internet
  + FlashStorage –save values
  + RTCZero –manage time triggered events
  + ArduinoLowPower –save battery power
  + WiFiUpd –get time and date from the internet

### References

### <https://create.arduino.cc/projecthub/arduino/the-nerd-0144f9> (Project Manual)

### <https://www.arduino.cc/en/Guide/Libraries> (Library Manager)

### <https://store.arduino.cc/usa/arduino-mkr1000-with-headers-mounted> (MKR1000 documentation)

### Objectives

### At the very base of this lab is an Arduino, which is in essence a microcontroller. This small board can be used to input signals, run code, and output signals accordingly. In today’s lab we will be using the Arduino to process electrical signals coming in from our phototransistor to care for our Nerd, a buzzer to inform you when the Nerd is not happy. We will also be using the components of the MKR IoT to help manage WiFi functionalities and store data in Flash Memory.

### Introduction

### The Nerd is a wireless electronic pet designed to keep you company. In this lab you will build your own Nerd and care for it by feeding it Wifi SSIDs. If you do not care for your Nerd properly, it will angrily beep at you. After two days without care your Nerd will die.

### Laboratory Procedure:

### The lab procedure for this lab can be found at:

### <https://create.arduino.cc/projecthub/arduino/the-nerd-0144f9>

### Link to the Code:

### <https://create.arduino.cc/editor/Arduino_Genuino/3d3e9029-e5d6-4c62-a217-fc398ac1ffd8/preview>

### Downloadable Link for Nerd Case:

### <https://docs.google.com/viewerng/viewer?url=https://hacksterio.s3.amazonaws.com/uploads/attachments/387847/thenerdcase_qxpRK4ni5M.pdf>

### Diagram Description automatically generated

### Figure 1: The circuit diagram for the Nerd

### Box and whisker chart Description automatically generated with medium confidence

### Figure 2: The case for the Nerd

### LAB 5 REPORT

Name:

Student No:

### Directions

Lab report is to be in an organized format, submitted as a single Word file with this sheet as your coversheet.

Upload the file as a MS Word Docx only. Each group member is to submit their own report and attempt their own models. You can create the Nerd case out of recycled materials; however, it is unnecessary to create the case to complete this lab.

**You must submit images that are completely your own. You are not permitted to share images with others in the course.**

### Report

1. Include a picture of your circuit board and Nerd dispenser if created
2. Include a name for your Nerd (optional)

**Answer the following questions:**

1. Why does the Nerd make a buzzer noise and how can you avoid it? Be sure to mention the purpose of the photoresistor in your answer.
2. What/how does the Nerd eat?
3. Why do we use Flash Memory in this project?