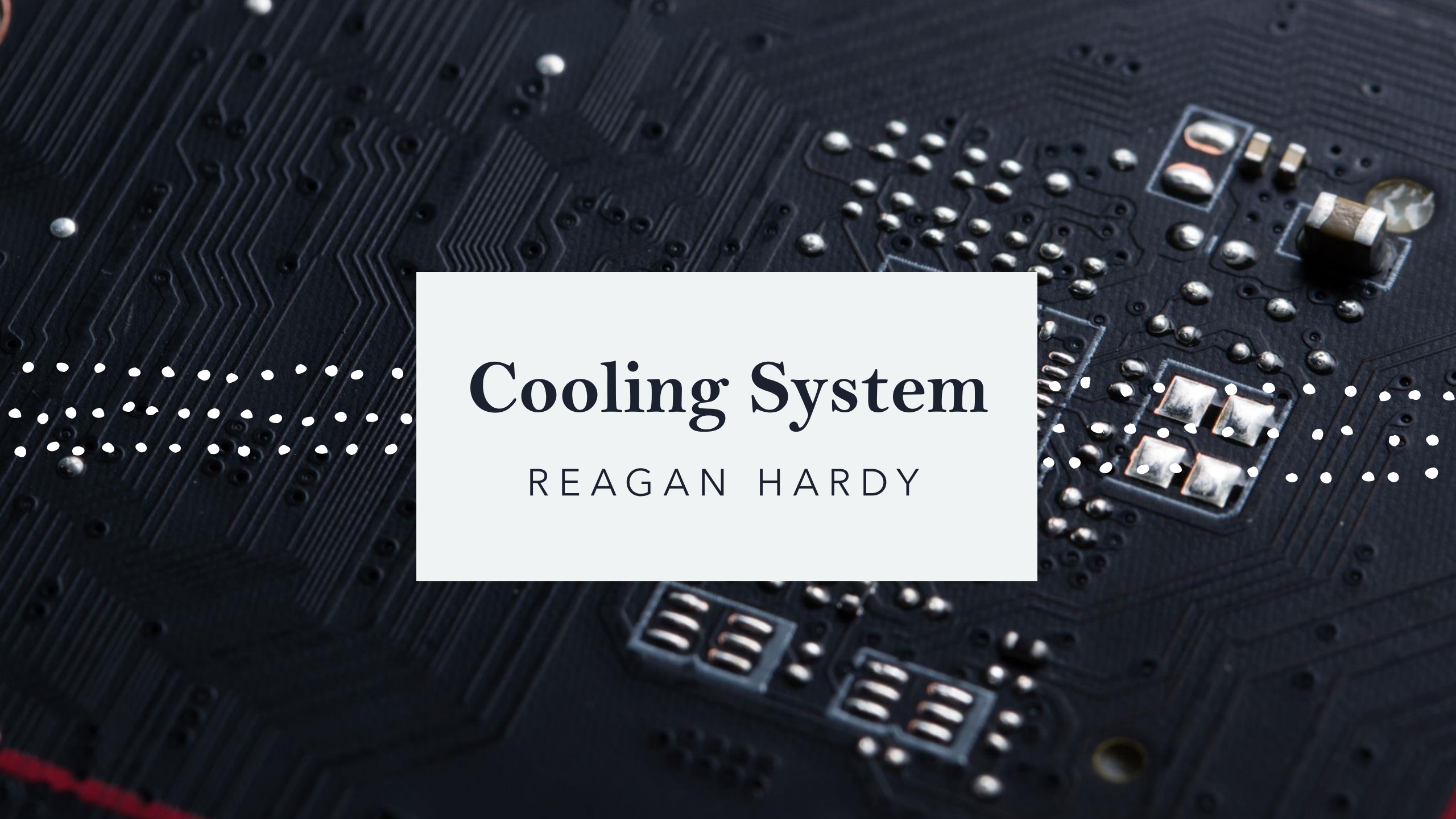


Cooling System

REAGAN HARDY

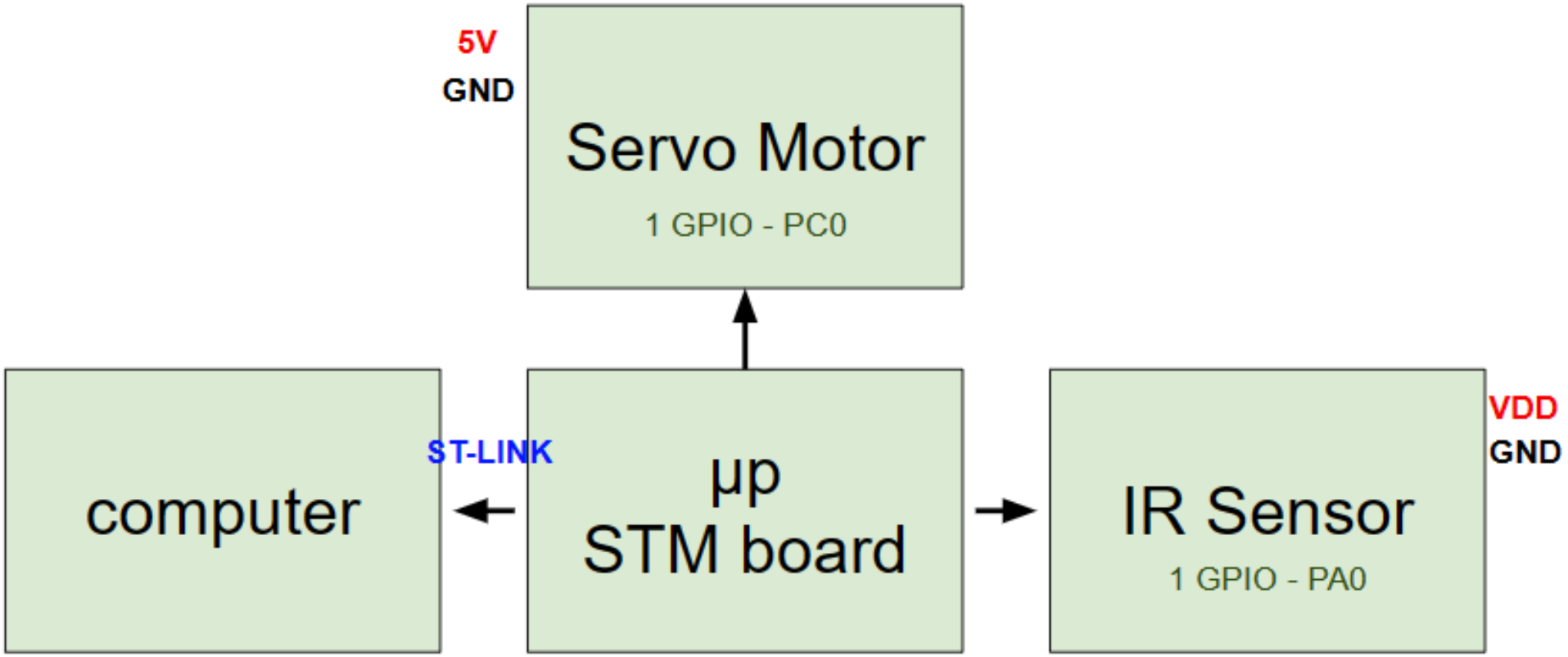
Introduction

- **The automatic cooling system uses three components:**

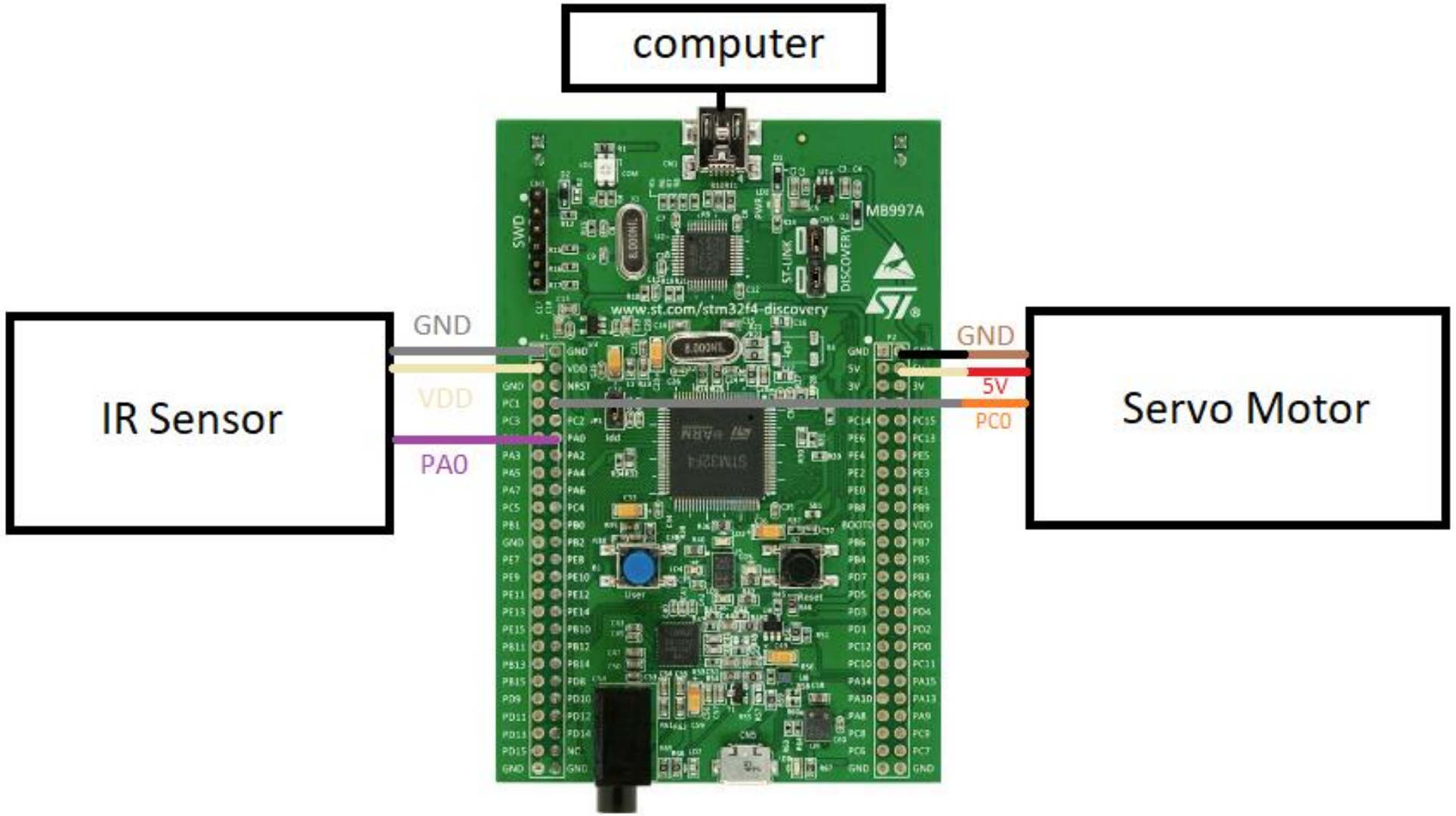
  (STM32 Board, IR Sensor, Servo Motor)

- **The IR sensor is used to detect if an object is in close proximity. If an object is detected, the IR LED will turn on as well as the servo motor. This creates a "fan."**

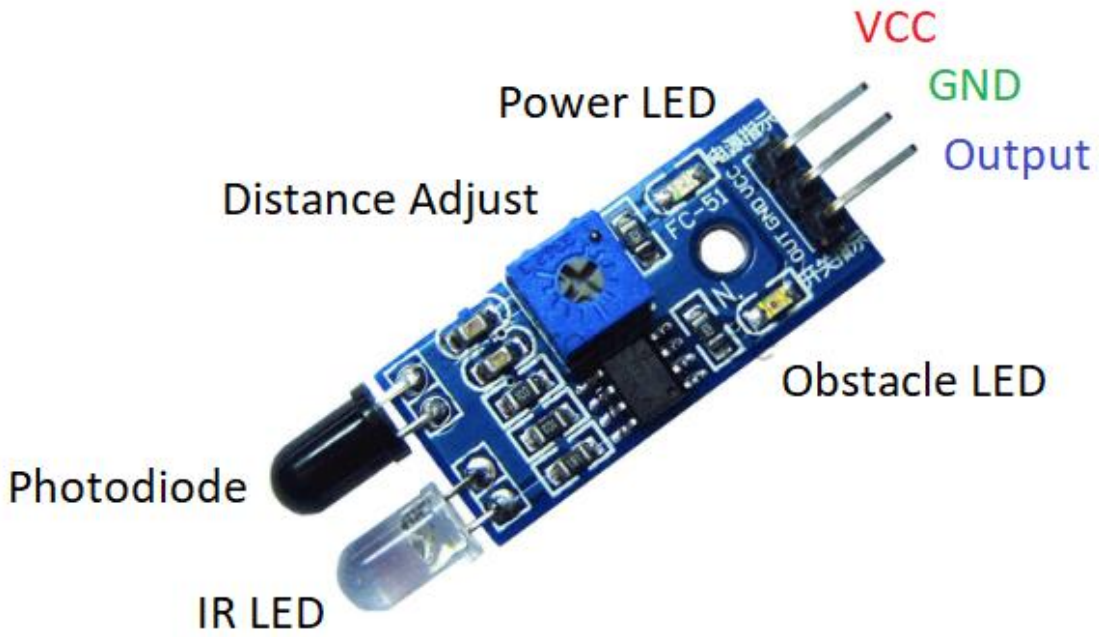
System Block Diagram



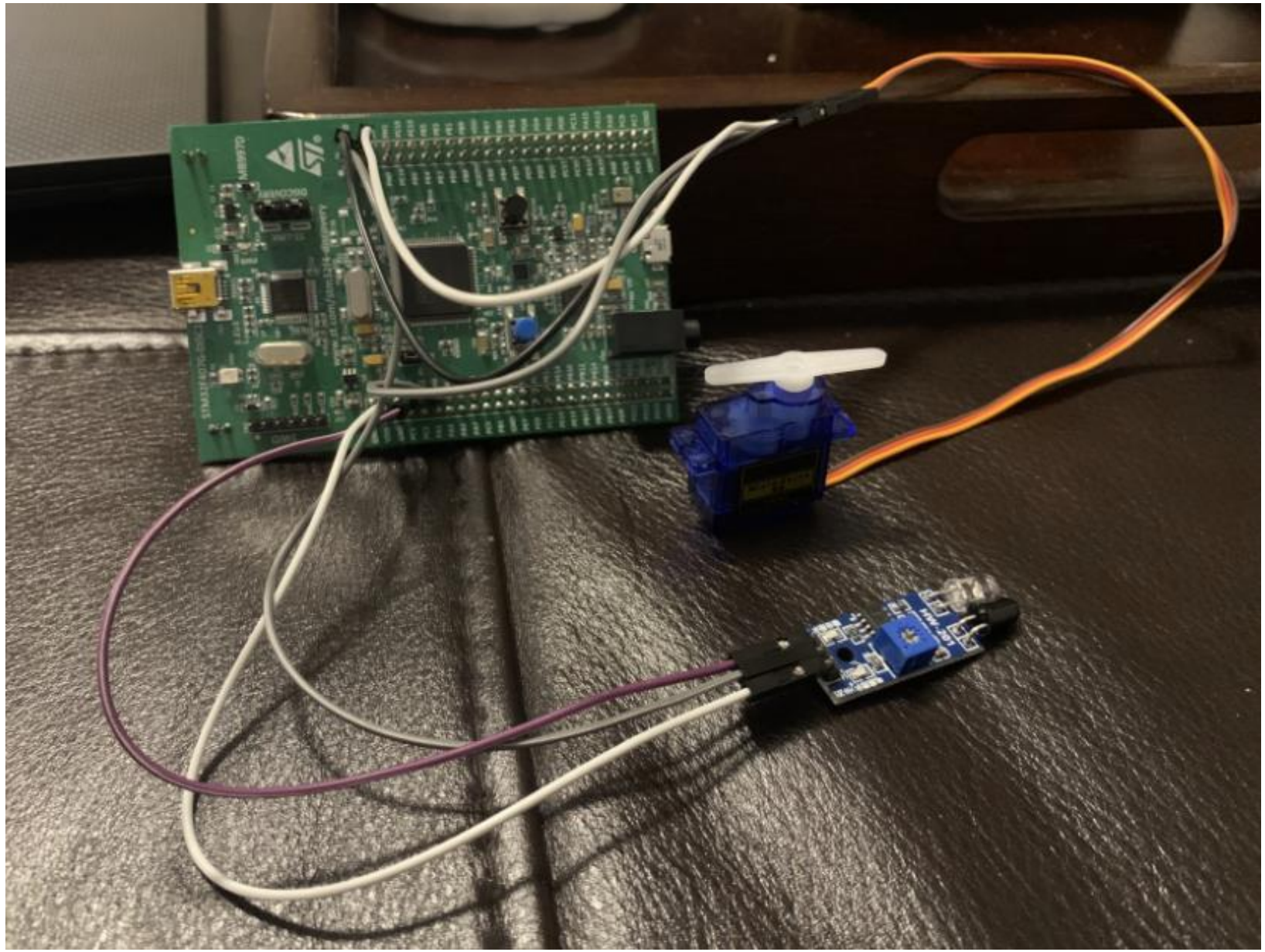
Wiring


computer
IR Sensor
GND
VDD
PA0
GND
5V
PC0
Servo Motor
www.st.com/stm32f4-discovery

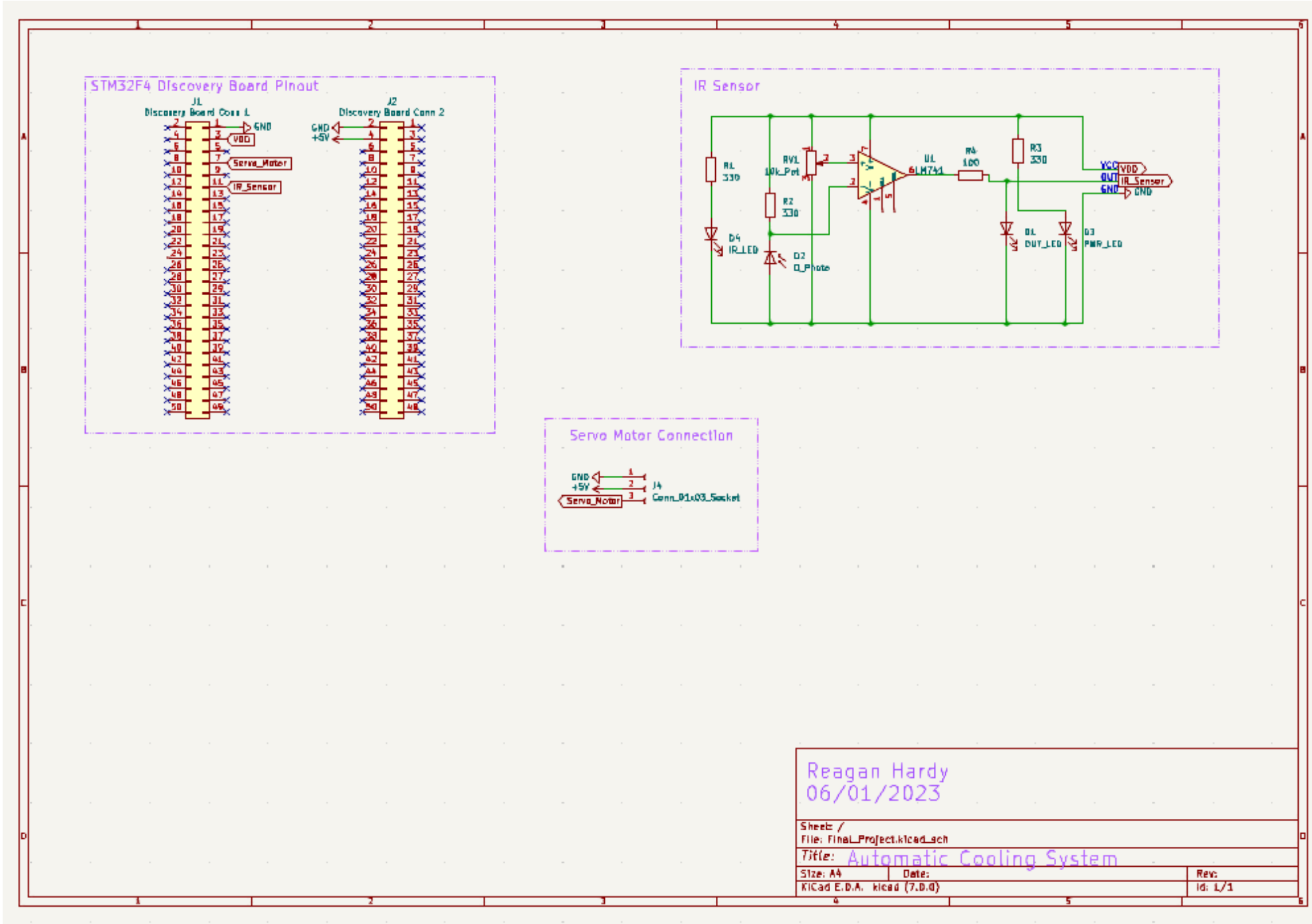
Connections



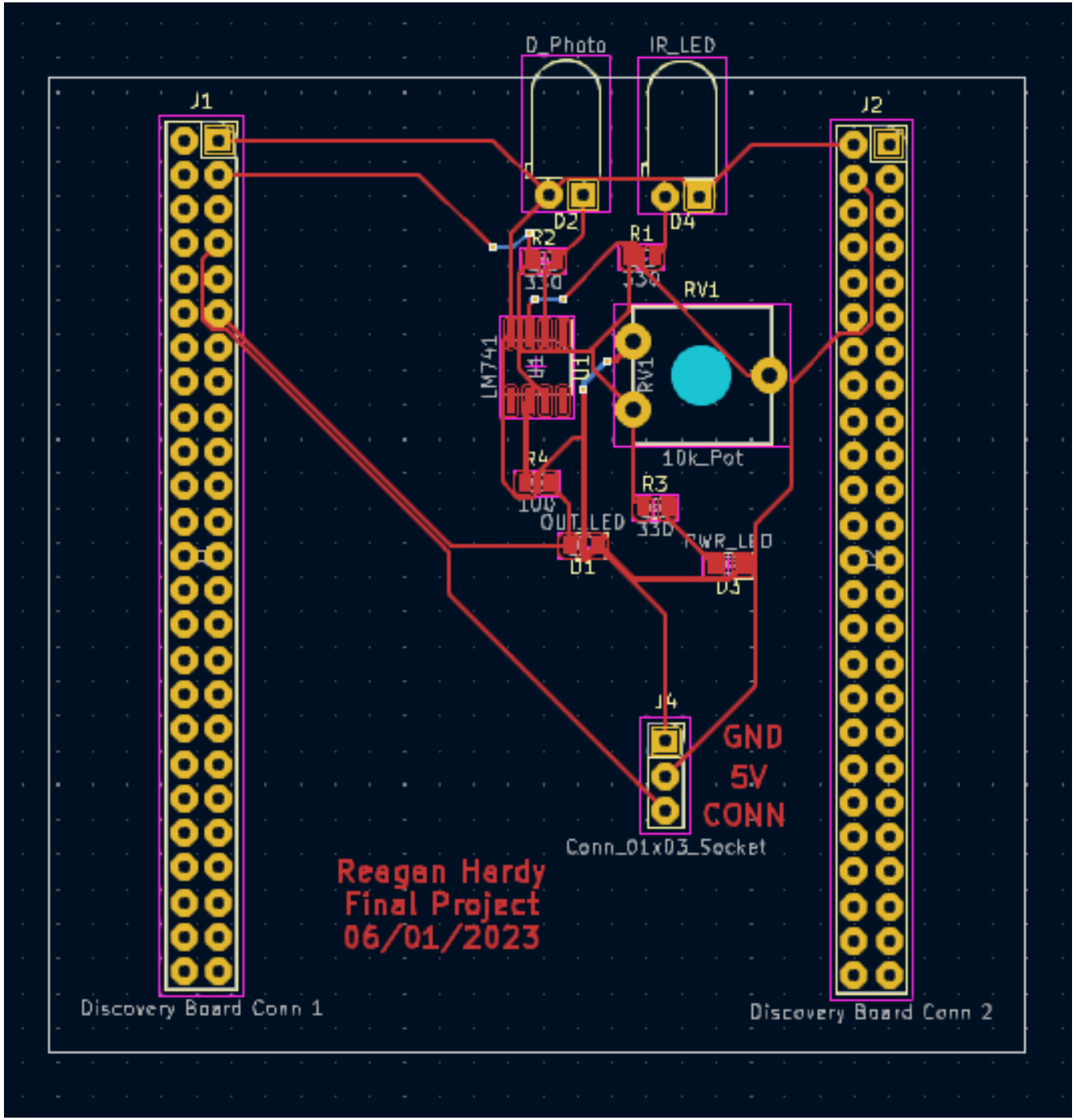
Build Prototype



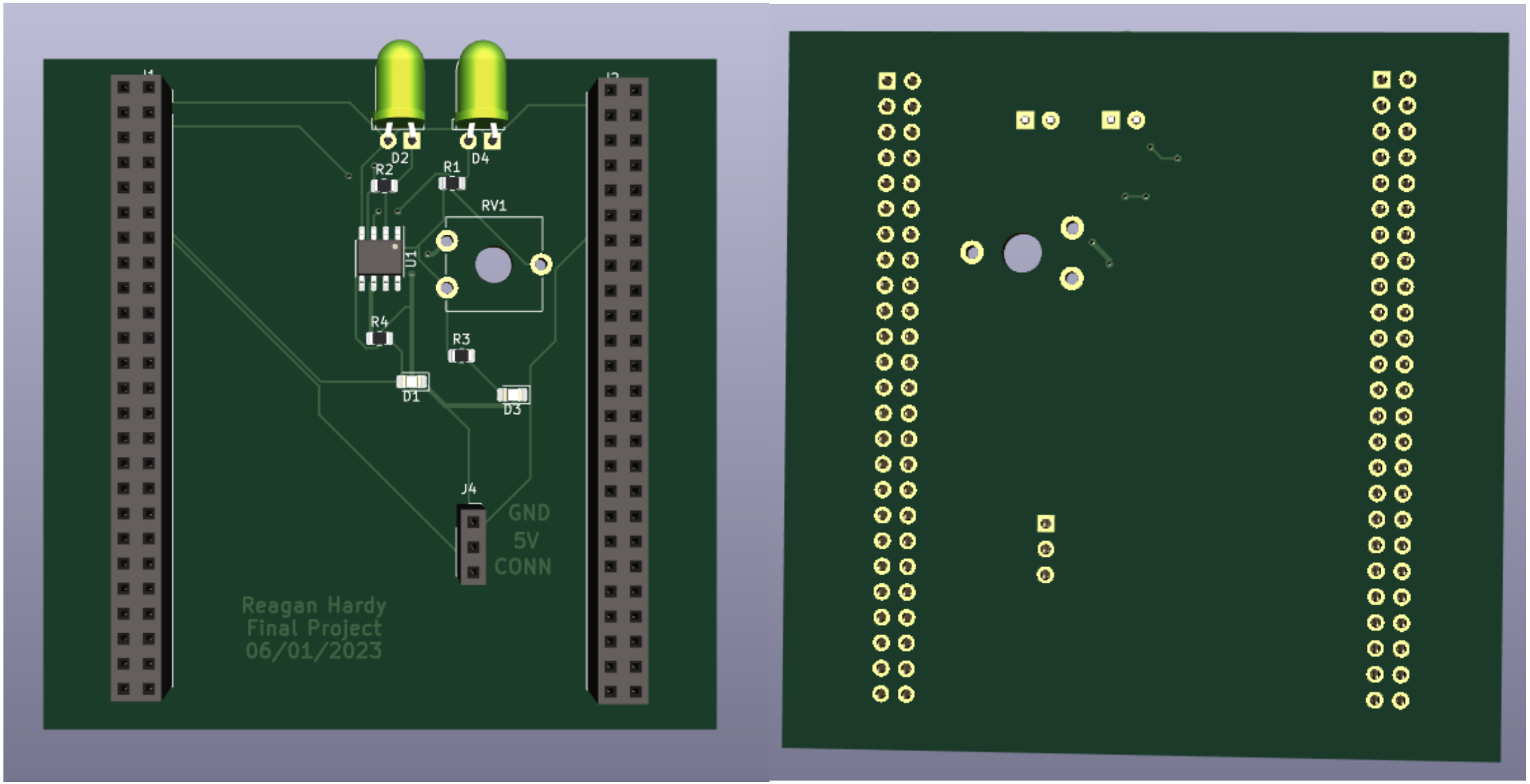
Schematic


STM32F4 Discovery Board Pinout
J1
Discovery Board Conn 1
J2
Discovery Board Conn 2
GND
VDD
Servo_Motor
IR_Sensor
GND
+5V
IR Sensor
R1
330
RV1
10k_Pot
R2
330
D4
IR_LED
D2
D_Photo
U1
6LM7A1
R4
100
R3
330
D1
OUT_LED
D3
PWR_LED
VCC
OUT
GND
VDD
IR_Sensor
GND
Servo Motor Connection
GND
+5V
Servo_Motor
J4
Conn_01x03_Socket
Reagan Hardy
06/01/2023
Sheet: /
File: Final_Project.kicad_sch
Title: Automatic Cooling System
Size: A4
Date:
Rev:
KiCad E.D.A. kicad (7.0.0)
Id: 1/1

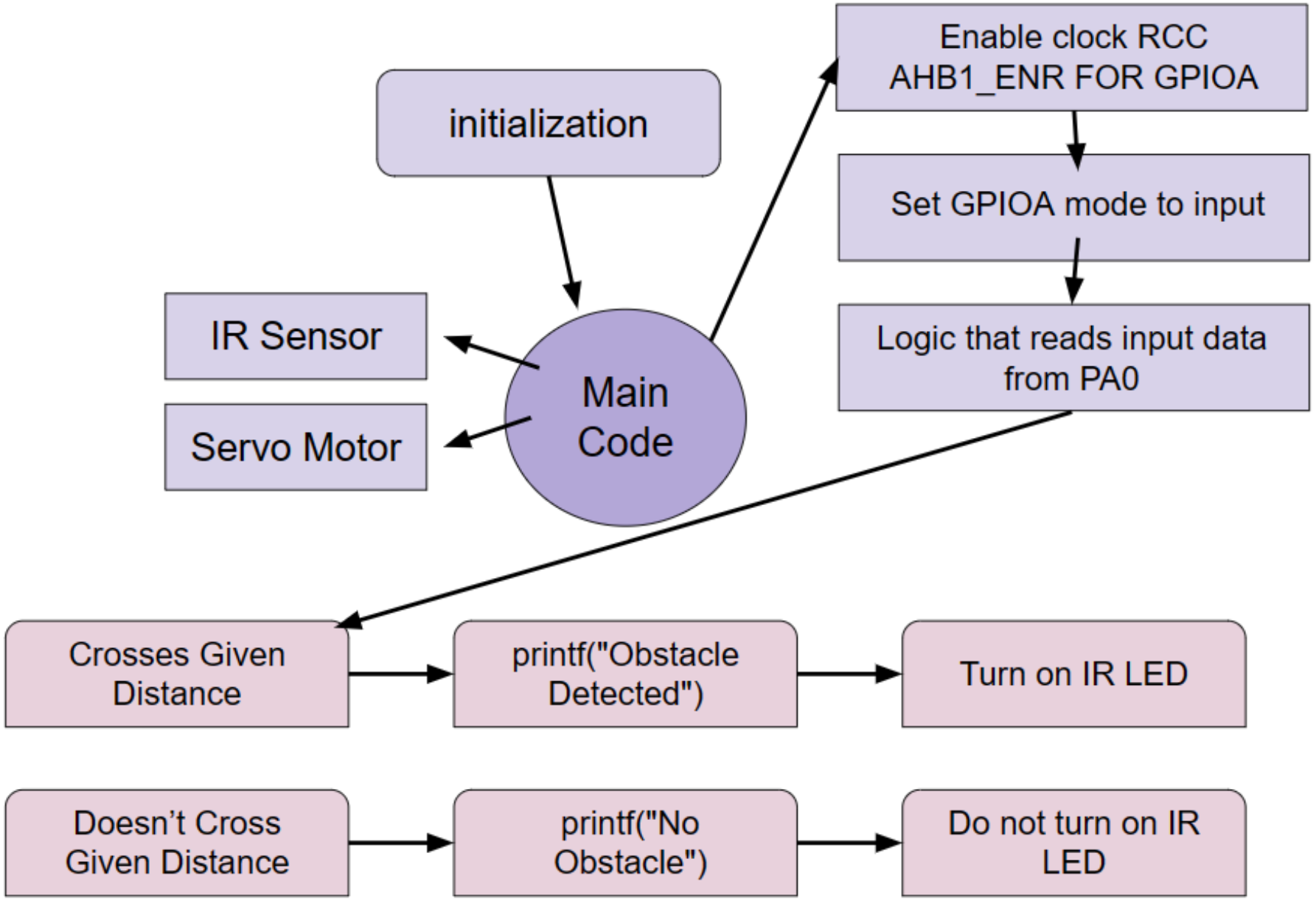
PCB Layout


D_Photo
IR_LED
J1
J2
D2
D4
R2
R1
RV1
LM741
U1
10k_Pot
R4
R3
OUT_LED
D1
D3
J4
GND
5V
CONN
Conn_01x03_Socket
Reagan Hardy
Final Project
06/01/2023
Discovery Board Conn 1
Discovery Board Conn 2

3D View


D2
D4
R2
R1
RV1
U1
R4
R3
D1
D3
J4
GND
5V
CONN
Reagan Hardy
Final Project
06/01/2023

Code Block Diagram



Conclusion

- **The cooling systems is not currently fully functional.**
- **The IR Sensor is wired and working, but the servo motor is not yet integrated within the code.**
- **In future goal it to get both components working together to create the "fan" effect**

Video Demonstration