

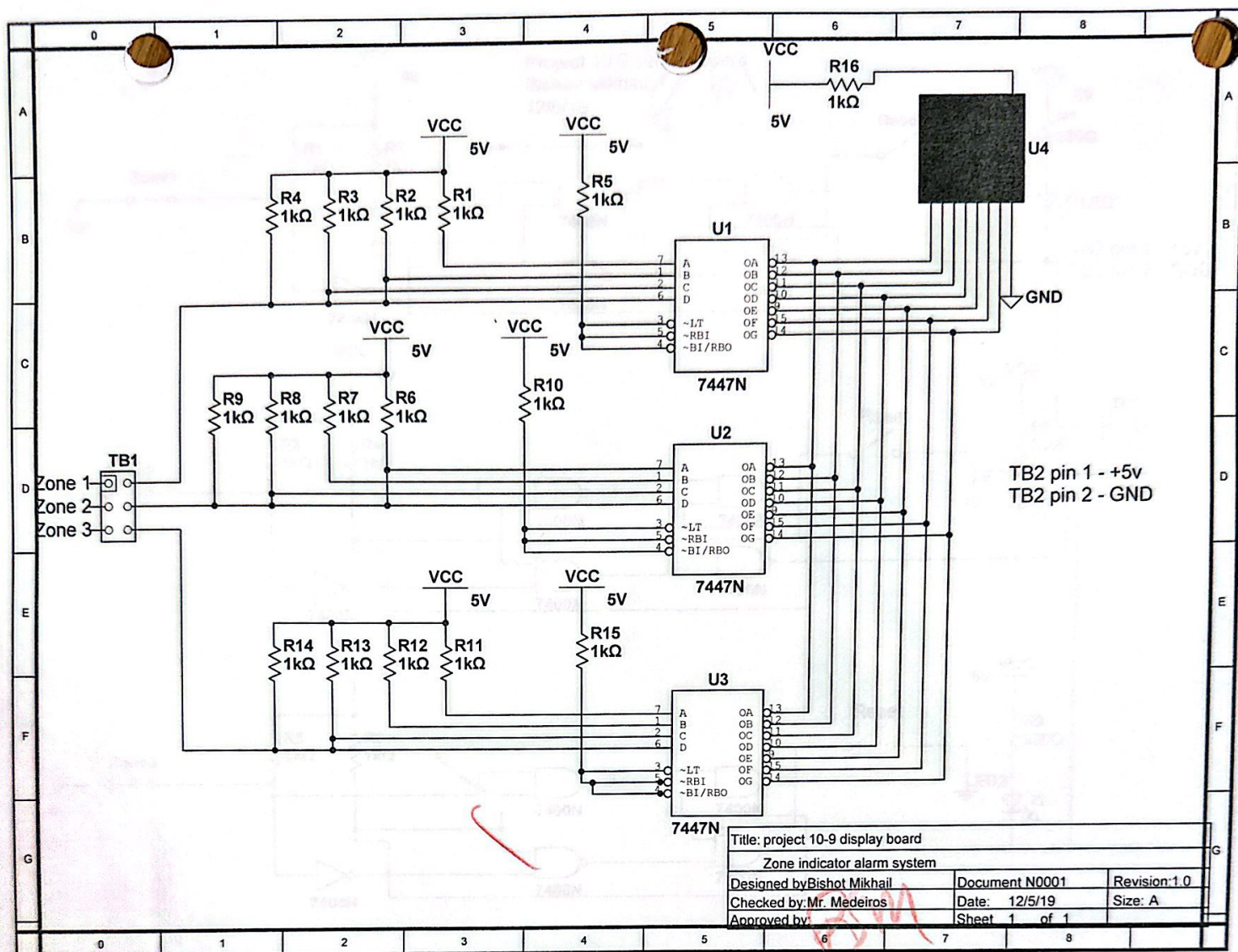
# **GR10 Project 10-9**

## **Zone Indicator Alarm System**

**Bishoy Mikhail**

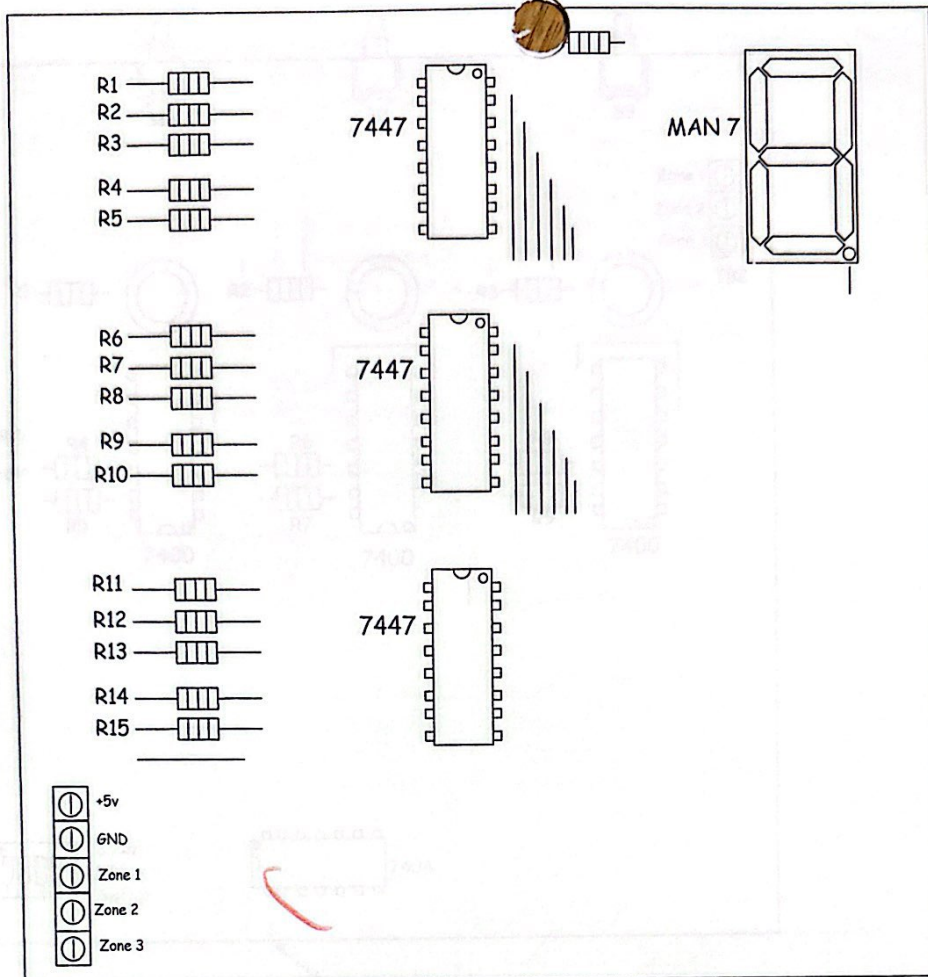
**1/7/2020**

**B-Weeks**



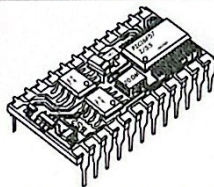






**Diman**  
Electronics Technology

Instructor:  
**Mr. Medeiros**

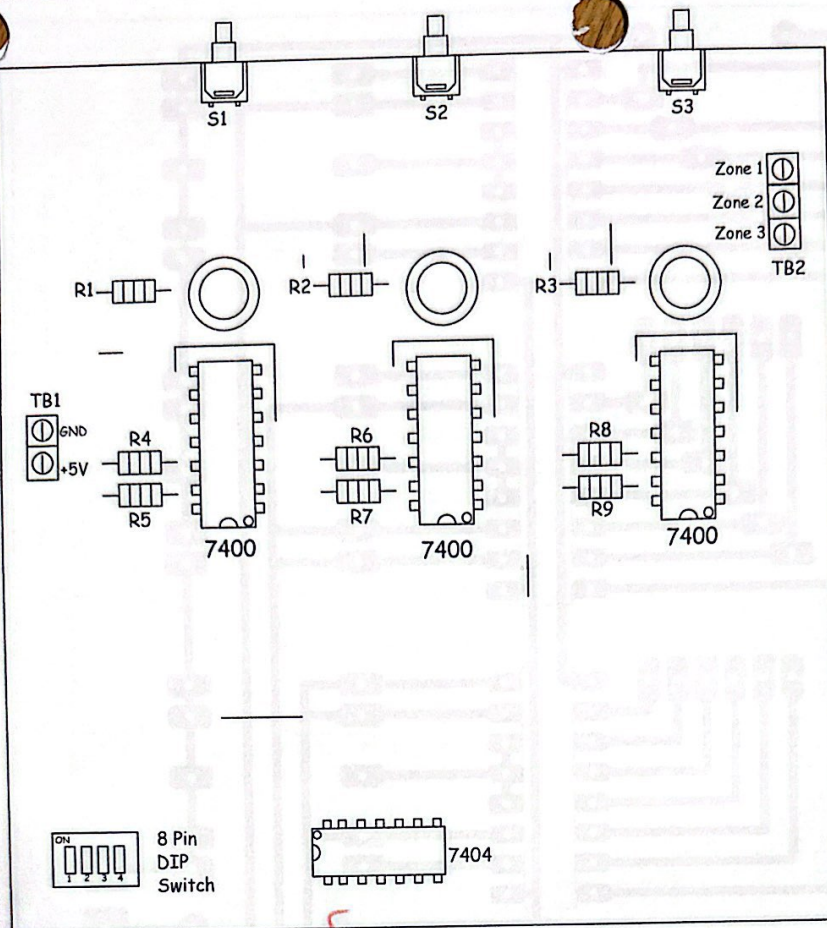


Drawing Title:  
Project 10-9 (display Board) Component View Diagram

Date:  
**1-7-2020**

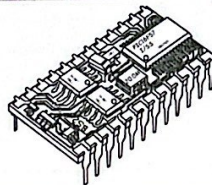
Name: **Bishoy Mikhail**

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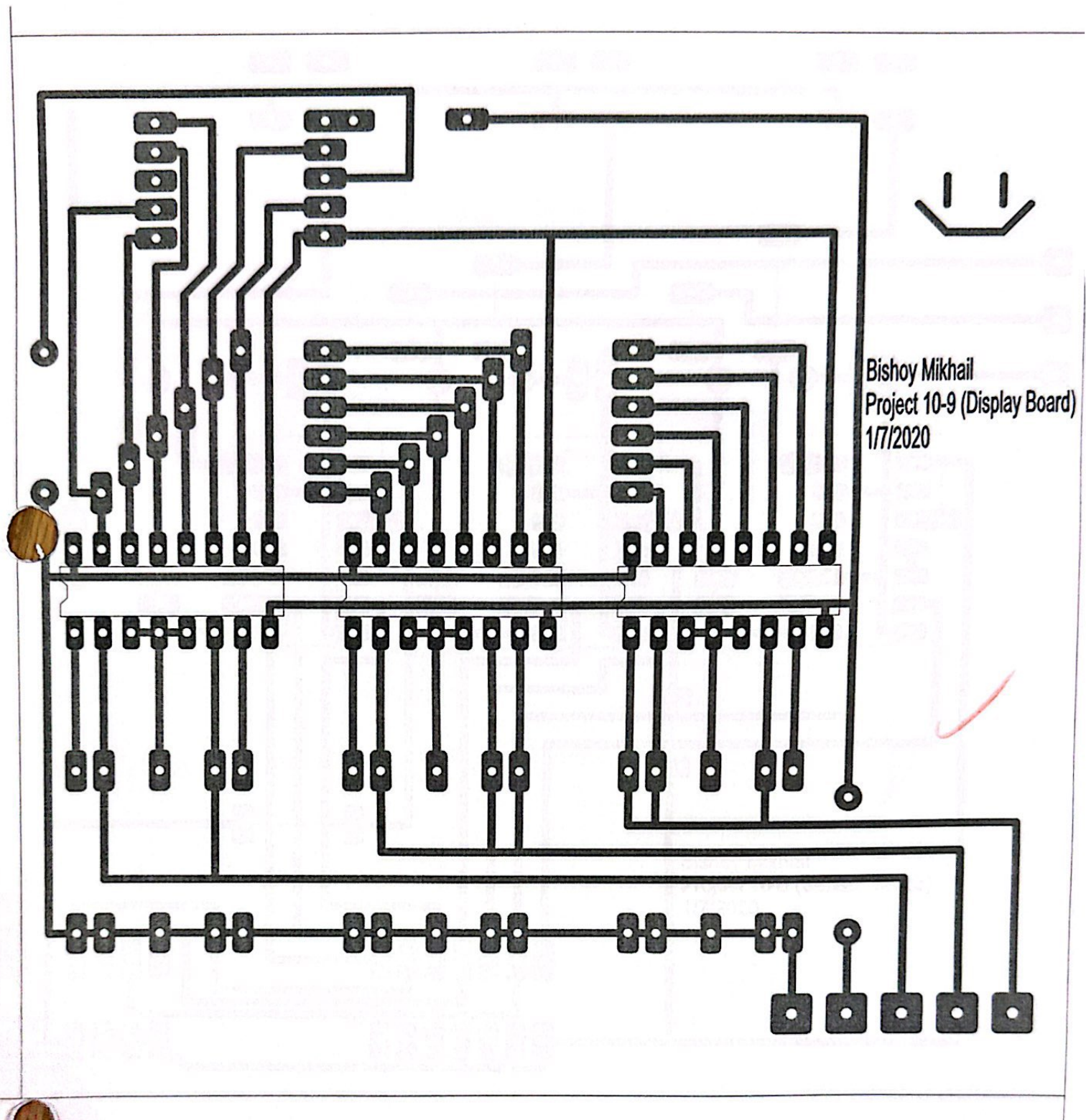
Drawing Title:  
Project 10-9 (Sensor) Board Component View Diagram

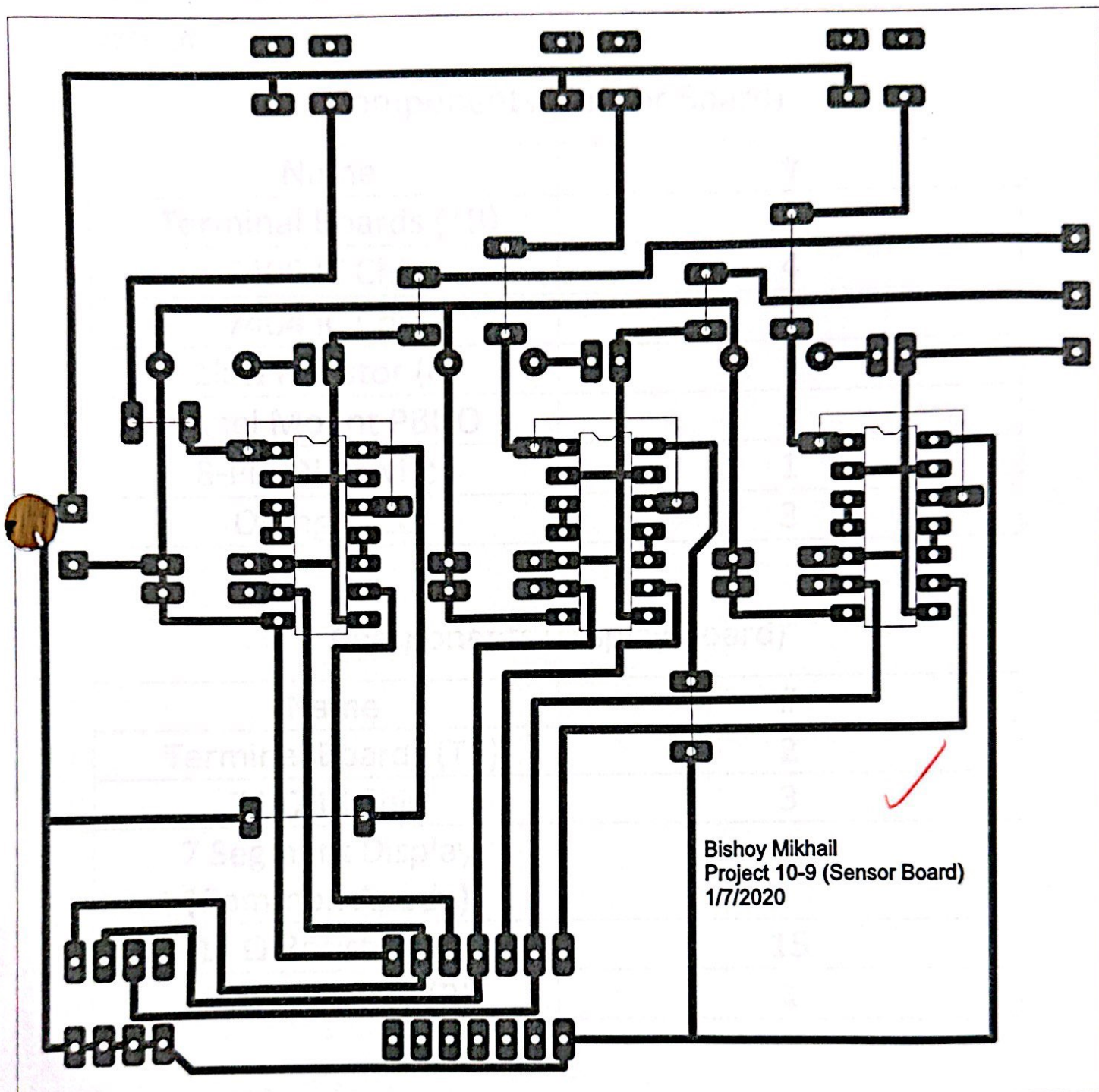
Name: **Bishoy Mikhail**

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Bishoy Mikhail

Project 10-9 Parts list

1/7/2020

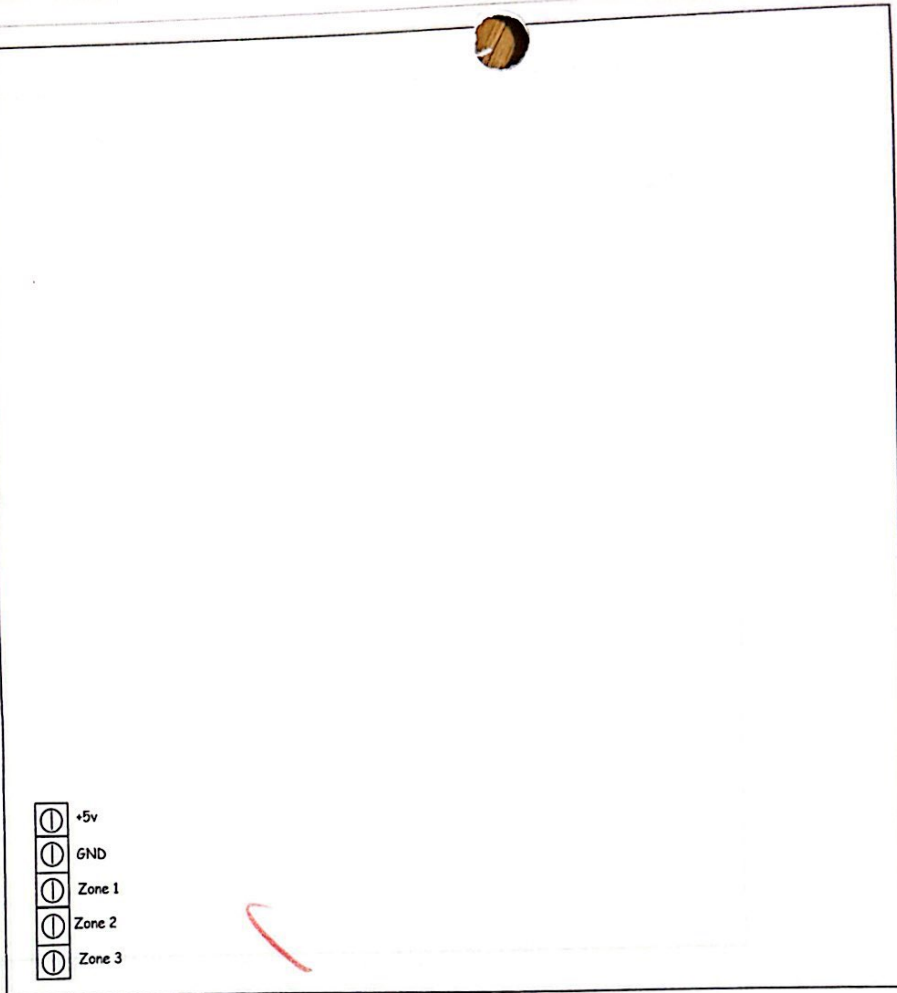
### Components (Sensor Board)

Name	#
Terminal Boards (TB)	2
7400 IC Chip	4
7404 IC Chip	1
1k $\Omega$ Resistor (R)	9
Panel Mount PBNO	3
8-Pin DIP Switch	1
Orange LED	3

### Components (Display Board)

Name	#
Terminal Boards (TB)	2
7447 IC Chip	3
7 Segment Display (Common Anode)	1
1k $\Omega$ Resistor (R)	15
220 $\Omega$ Resistor (R)	1

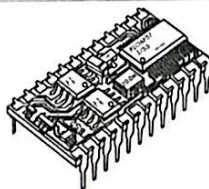




- ☐ +5v
- ☐ GND
- ☐ Zone 1
- ☐ Zone 2
- ☐ Zone 3

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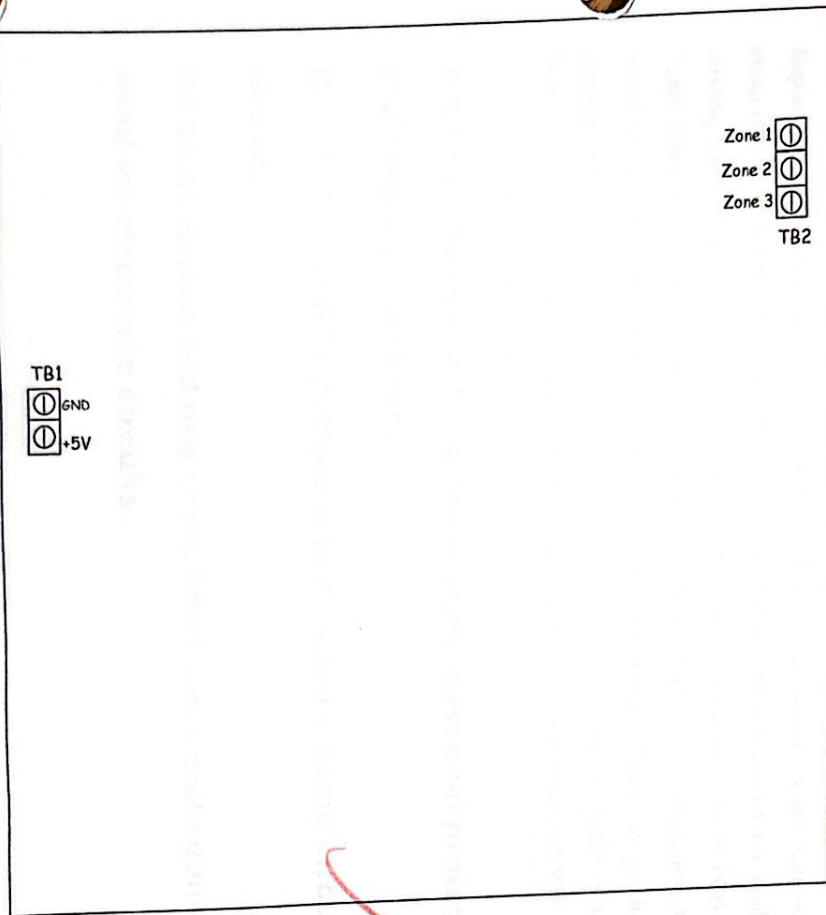


Drawing Title:  
Project 10-9 (display Board) Interconnection Diagram

Date:  
**1-7-2020**

Name: **Bishoy Mikhail**

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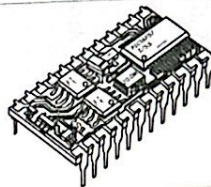


TB1  
 ⓪ GND  
 ⓪ +5V

Zone 1 ⓪  
 Zone 2 ⓪  
 Zone 3 ⓪  
 TB2

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Instructor:  
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Drawing Title:  
**Project 10-9 (Sensor) Board Interconnection Diagram**

Date:  
**1-7-2020**

Name: **Bishoy Mikhail**

Page Number:  
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Bishoy Mikhail

Electronics Technology

Zone Indicator Alarm System (Display Board)

January 7, 2019

### **Theory of operation**

The task was to create a display board for a zone indicator alarm system using a 7 segment display and 7447 decoder chips. This task was performed individually. A schematic was made using Digital Multisim. I then made the circuit on a breadboard and ensured it worked before moving on. A foil pattern was provided by the instructor and we copied it using PCB Design and Make. Next I fabricated a circuit using the Roland Modela MDX-40 router and populated it. This board was designed to interface with another board (sensor board). Three decoder chips were used to display zone one, two and three on a man 7. When a zone was triggered on the sensor board, it would be shown on the display board. The finished product turned out well and took three school days to complete.

**2.A.01.04 Select and use appropriate personal protective equipment at all times.**

**2. H.02.01 Use PCB software to develop a basic circuit design.**

**2.I.02.03 Select and use basic hand tools and equipment used for electronic circuits.**



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Electronics Technology

Zone Indicator Alarm System (Sensor Board)

January 7, 2019

### Theory of operation

The task was to create a sensor board for a zone indicator alarm system using NAND gates and inverters. This task was performed individually. A schematic was made using Digital Multisim. I then made the circuit on a breadboard and ensured it worked before moving on. A foil pattern was provided by the instructor and we copied it using PCB Design and Make. There was a design change with the push buttons. Panel mount push button switches were moved to the edge of the board. Additional jumpers were needed to perform this task. Next I fabricated a circuit using the Roland Modela MDX-40 router and populated it. This board was designed to interface with another board (Display board). A DIP switch was used to trigger each zone. The signal would be sent to the display board and showed the zone number on the Man 7. The zone would remain triggered until it was reset with the push button. The finished product turned out well and took three school days to complete.

**2.A.01.04 Select and use appropriate personal protective equipment at all times.**

**2.F.02.02 Identify basic TTL gates of the 7400 series.**

**2.F.02.08 Identify various combinational and sequential logic circuits.**

