



# Small electronic parts management system

ECE 445

Final Presentation

Group #31

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# Overview

- Introduction & Objectives
- Key Features
- Design, Requirements and Verifications of Each modules
- Future Applications and Improvements
- Acknowledgement
- Questions

# Introduction

- How we come up with this idea
- How it works



*Drawers in Senior Design Lab*

# Objectives

- Opened drawer recognition. ✓
- LCD user interface. ✓
- Keypad input. ✓
- Wireless data transfer. ✓
- Items counter. ✓
- Online database. ✓

## Key Features

- Easy operation
- LCD display
- MySQL database inventory
- Wireless data transfer

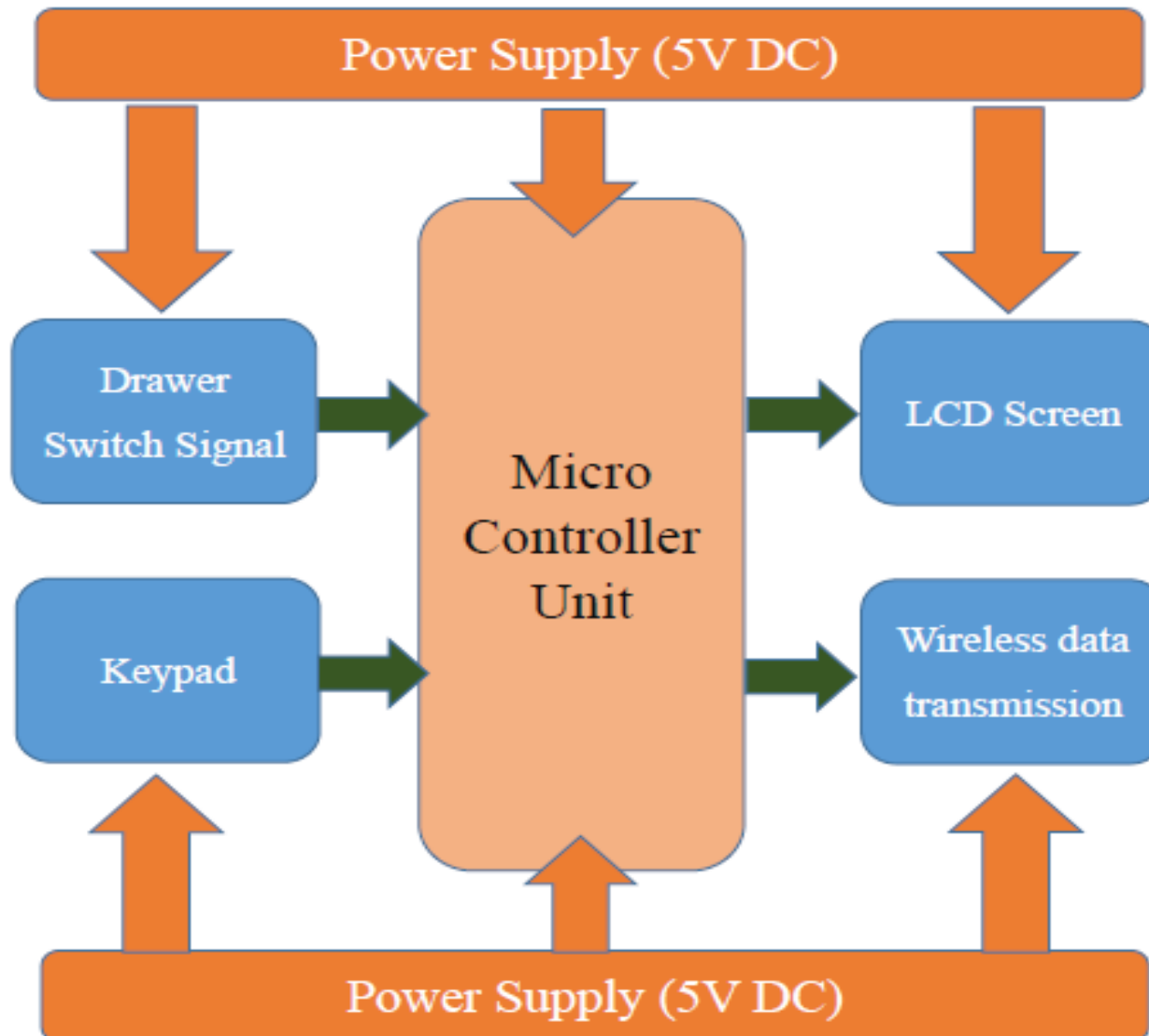


*A sample Keypad*



# Design, Requirements and Verifications

# Main Block Diagram



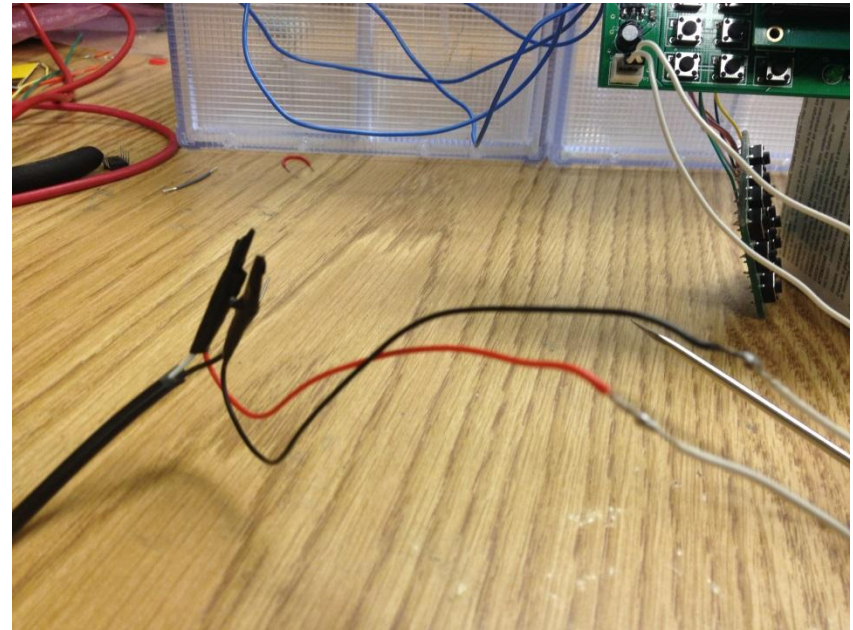
# Power Supply



# Power Supply

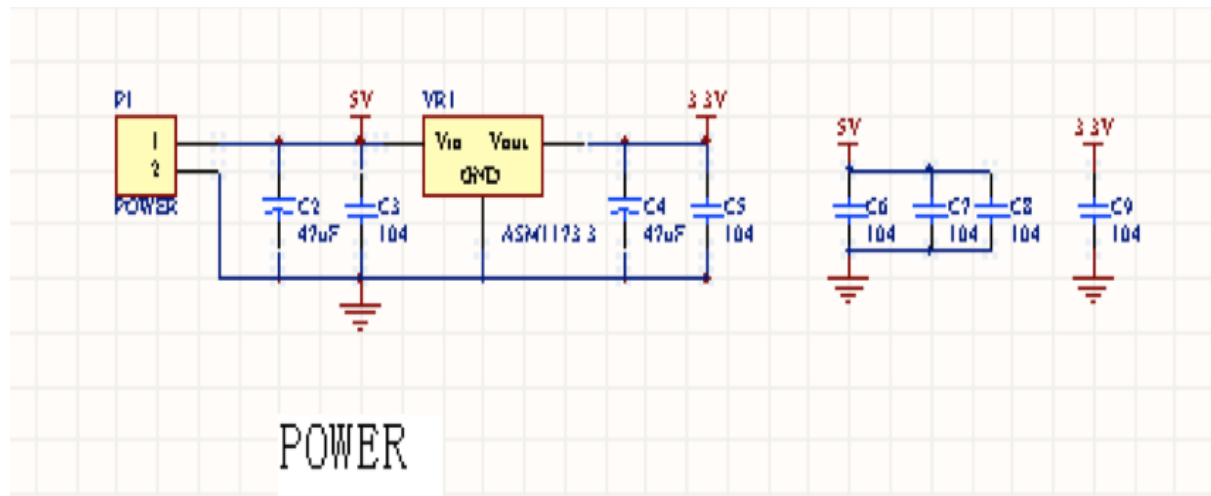


*120V AC to 5V DC 2A converter*



*Intersection between PCB and converter*

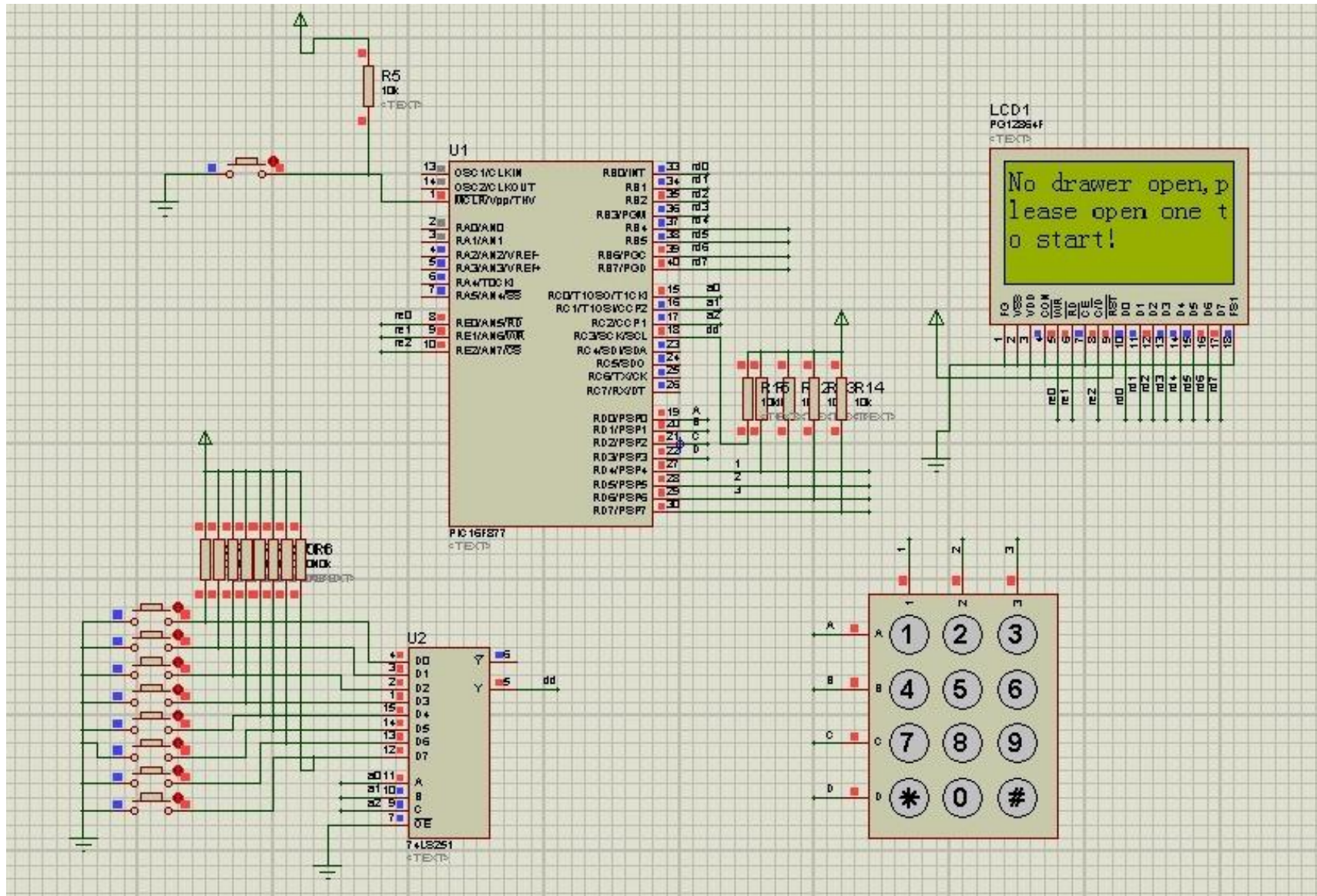
# Power Supply



*Schematic of 5V to 3.3V regulator*

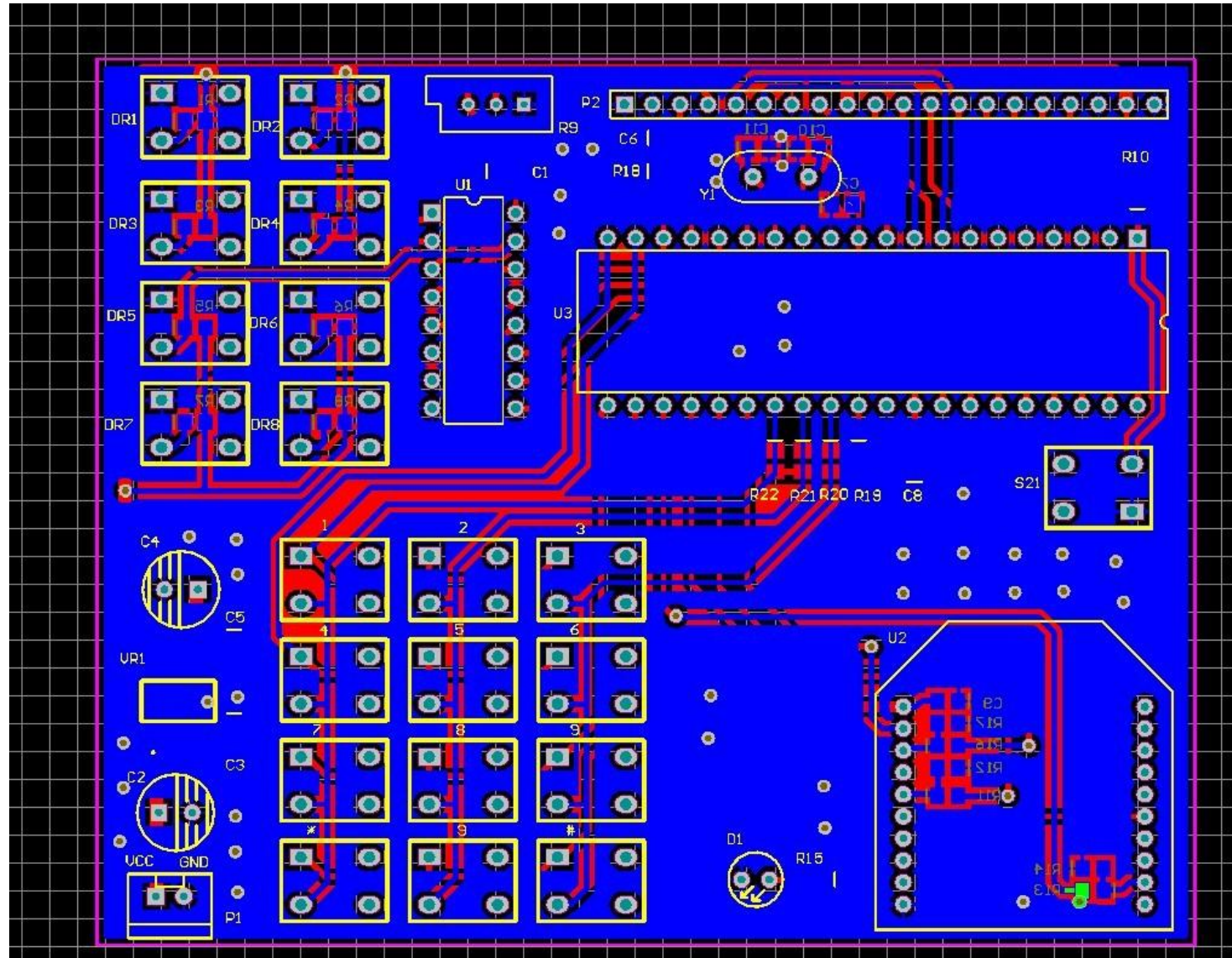
# Micro Controller Unit

# MCU circuit design

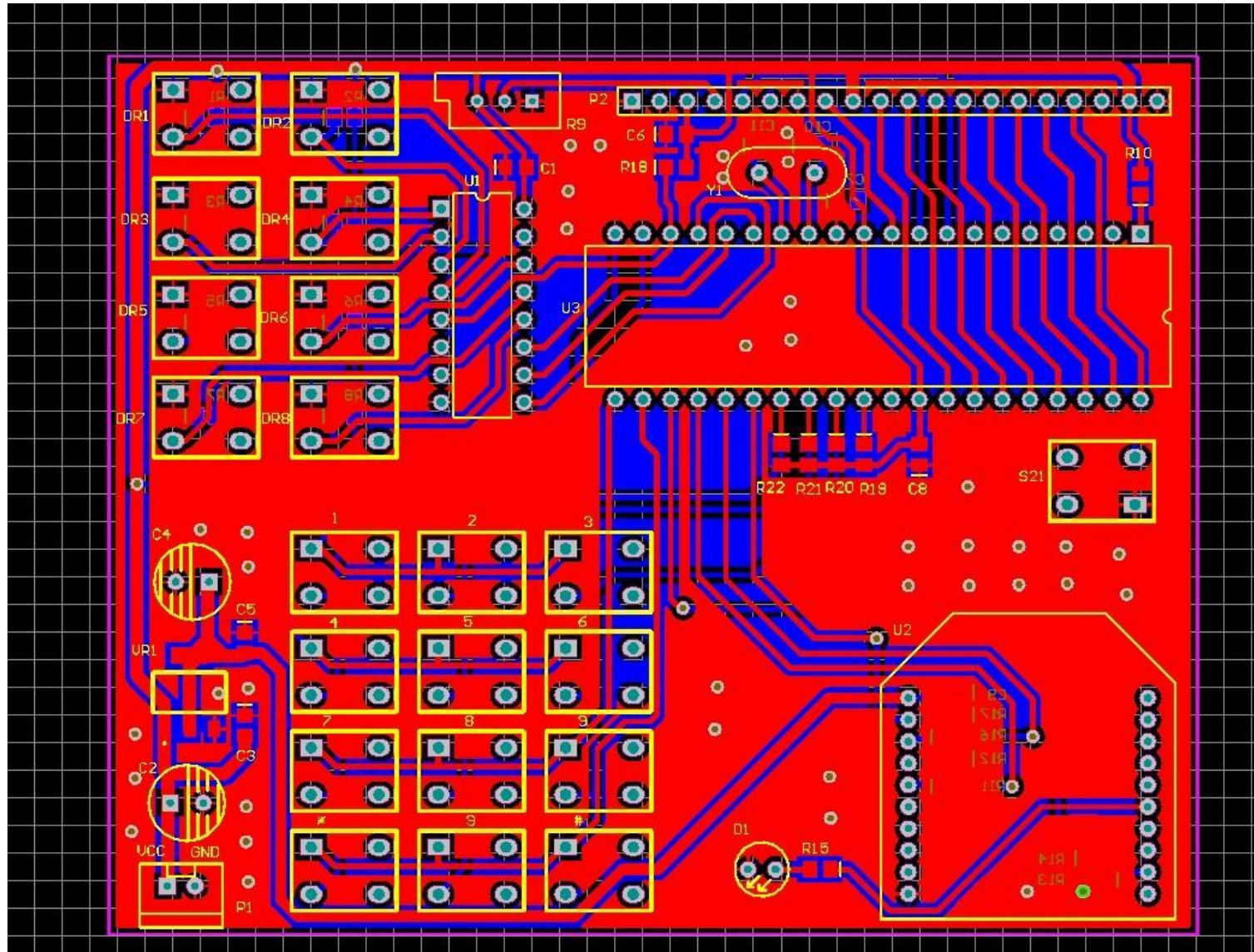




# Layer 1 for PCB

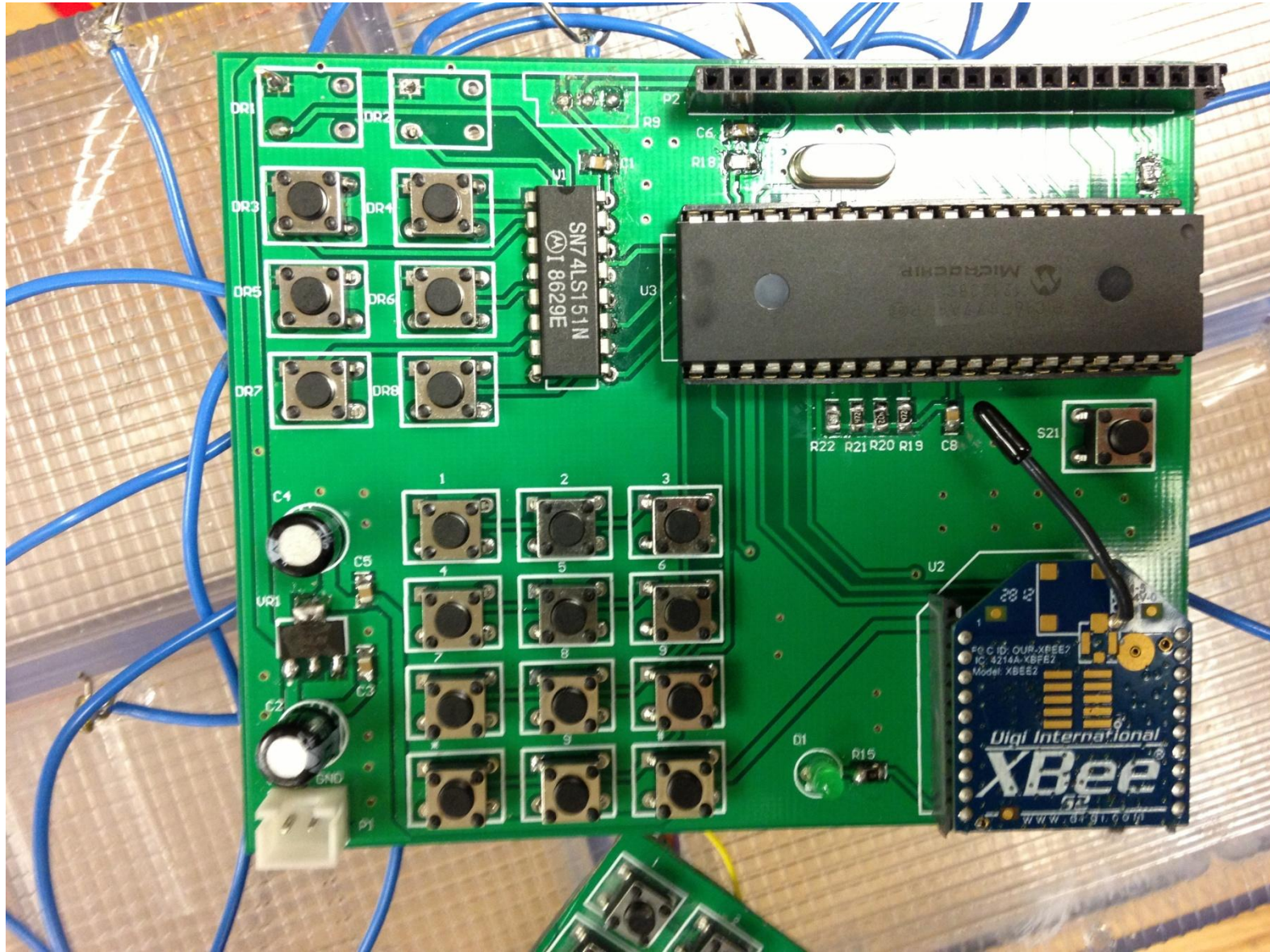


# Layer 2 for PCB

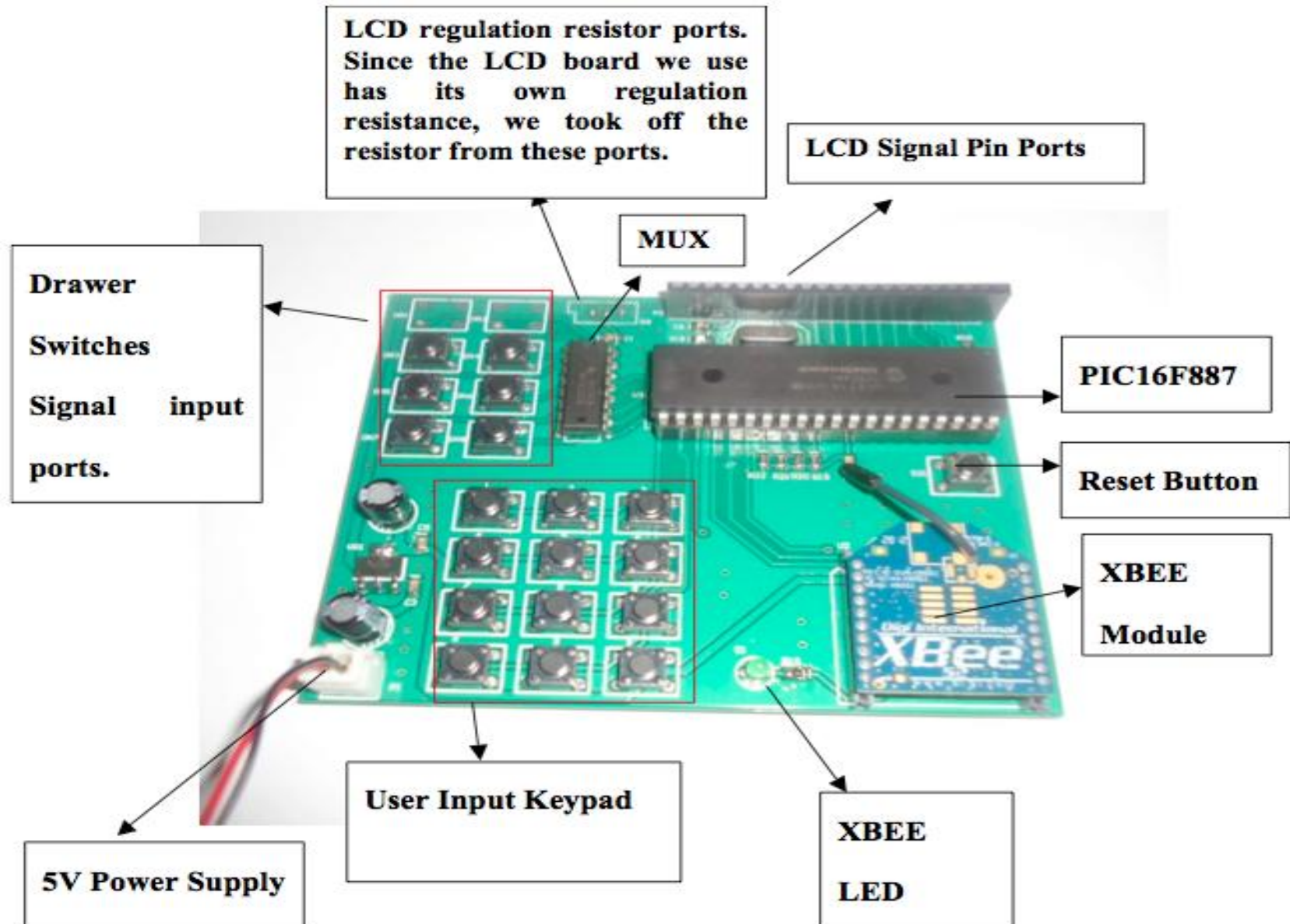




# PCB



# PCB Introduction





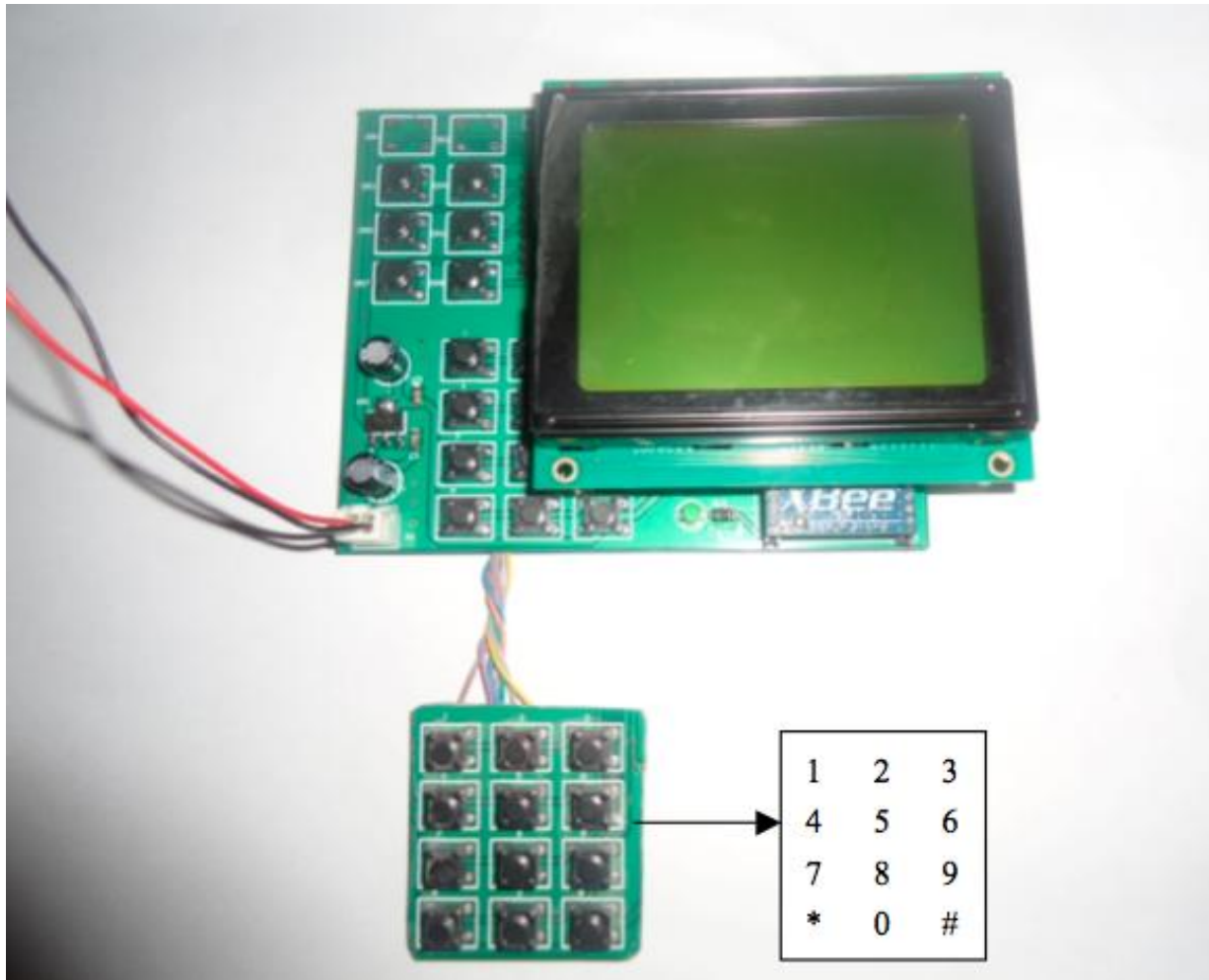
# A little modification for Keypad



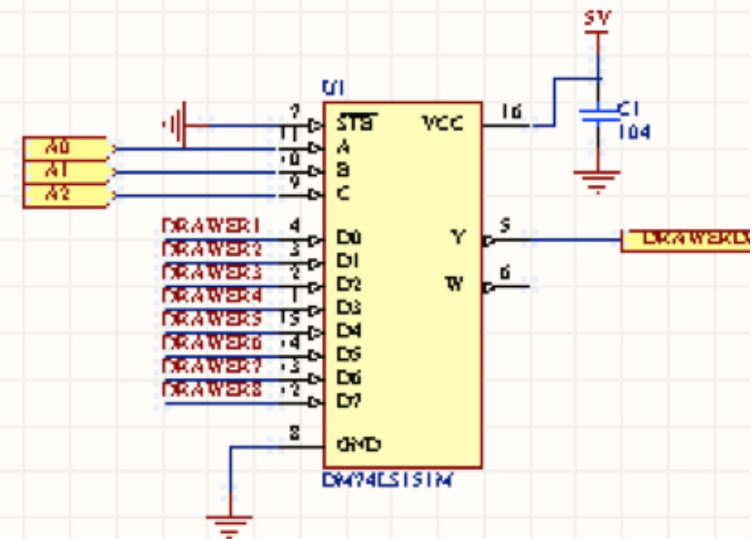
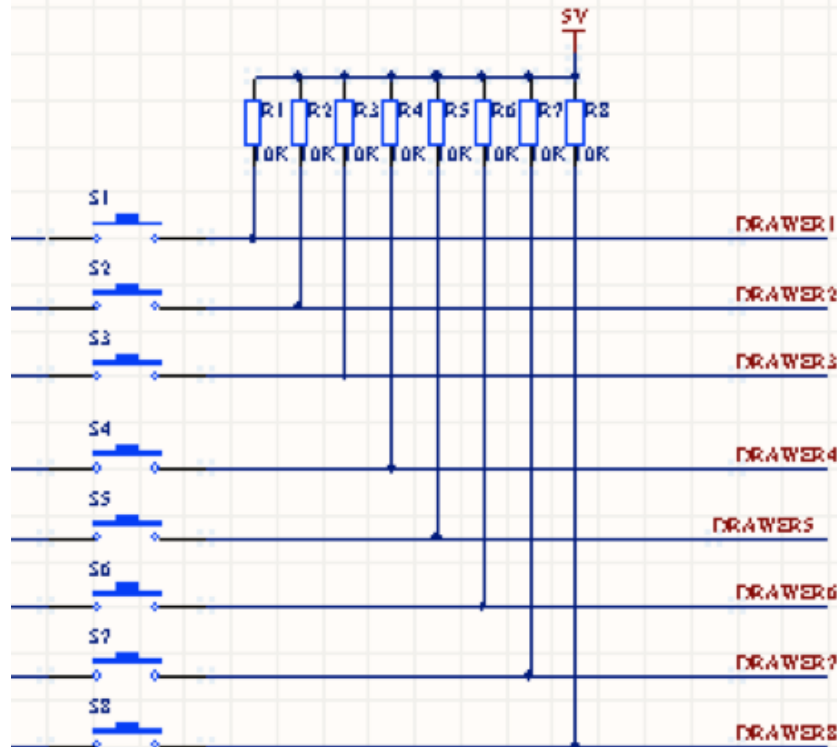
**After We place the LCD board to our PCB, we found that a parts of our User input buttons are block by the LCD, so we add a new keypad board beside PCB**

**LCD Board**

# A little modification for Keypad



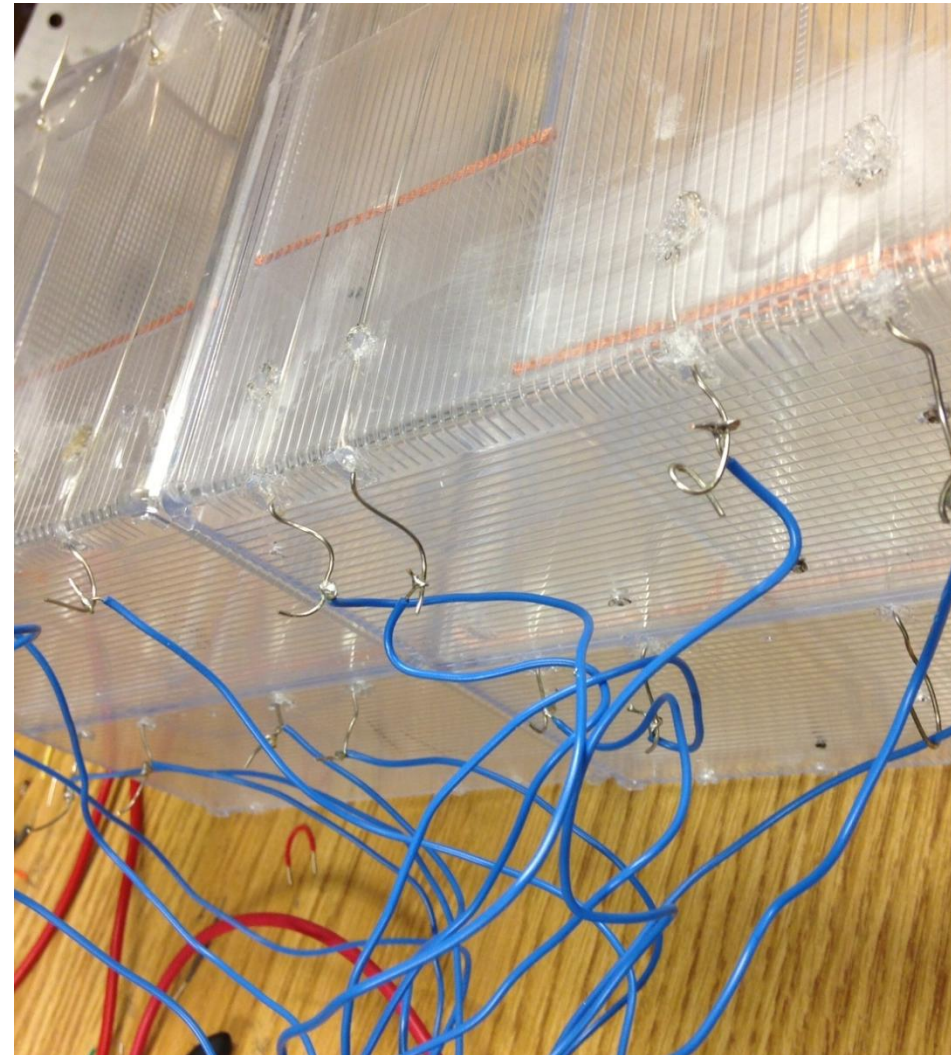
# *Schematic for switch and MUX*



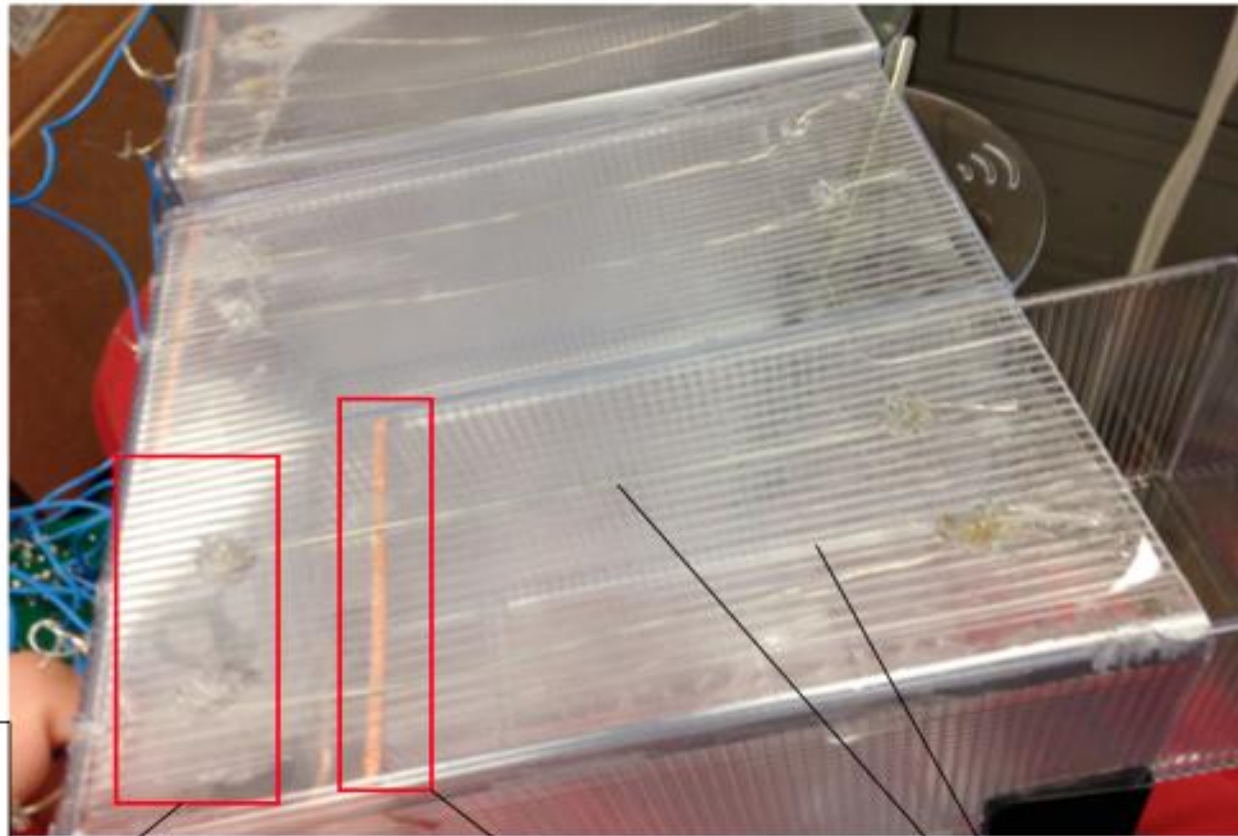
DRAWER MUX



# Connecting drawer signal to PCB



# Drawer switches



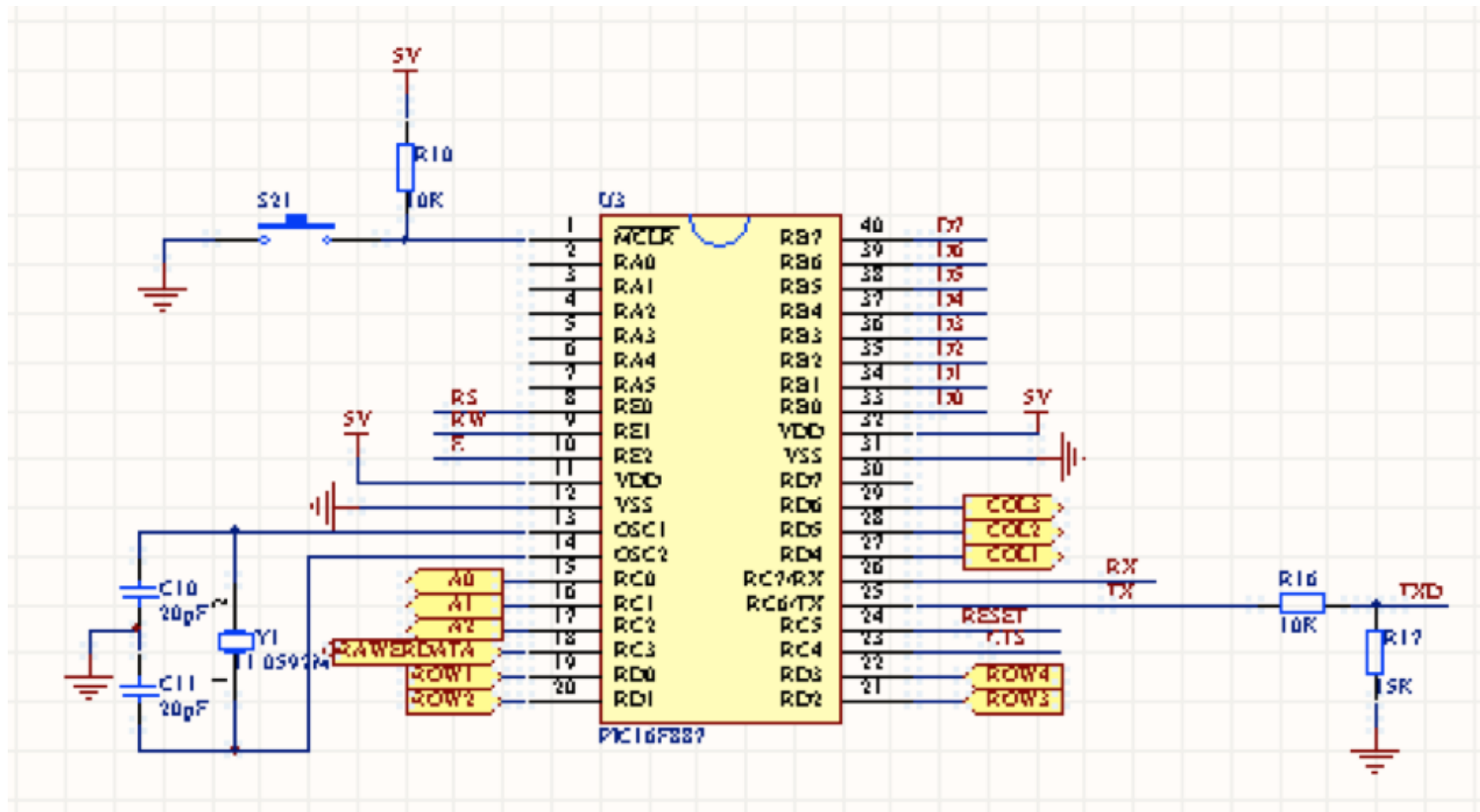
We place tape here to disconnect the copper and wires when we close the drawer

Copper

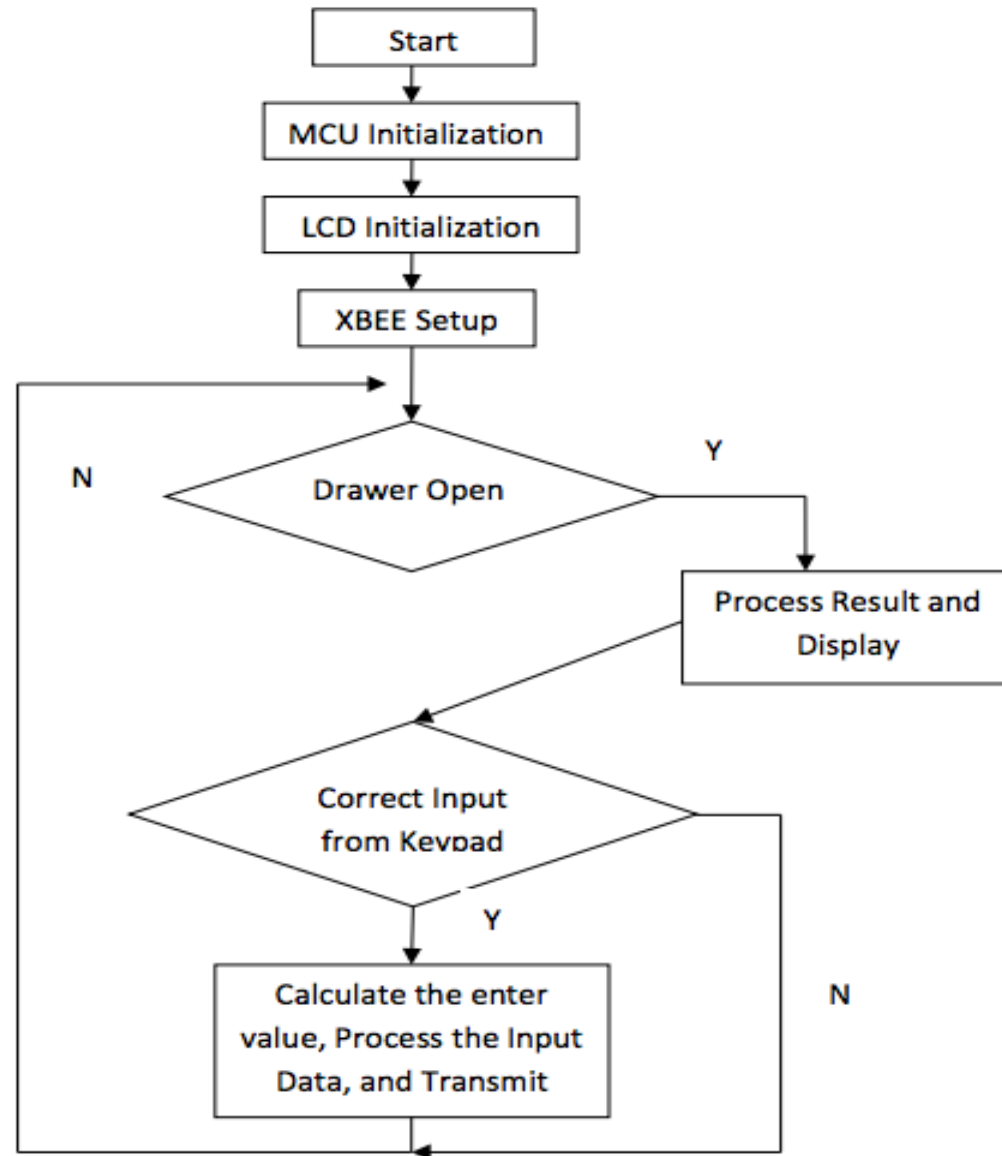
2 Wires are connecting by the copper when the drawer is open



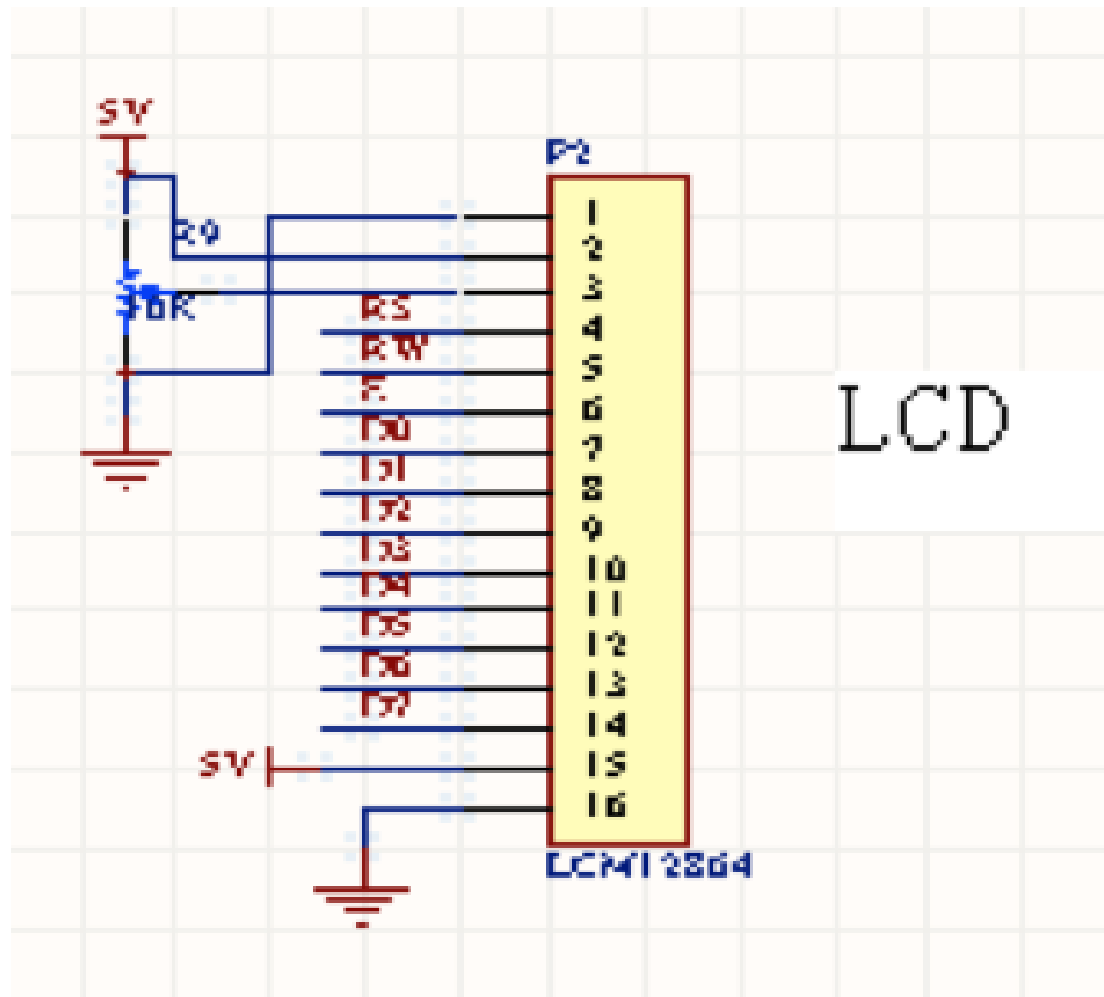
# Schematic for PIC



# *Flowchart for PIC working process*

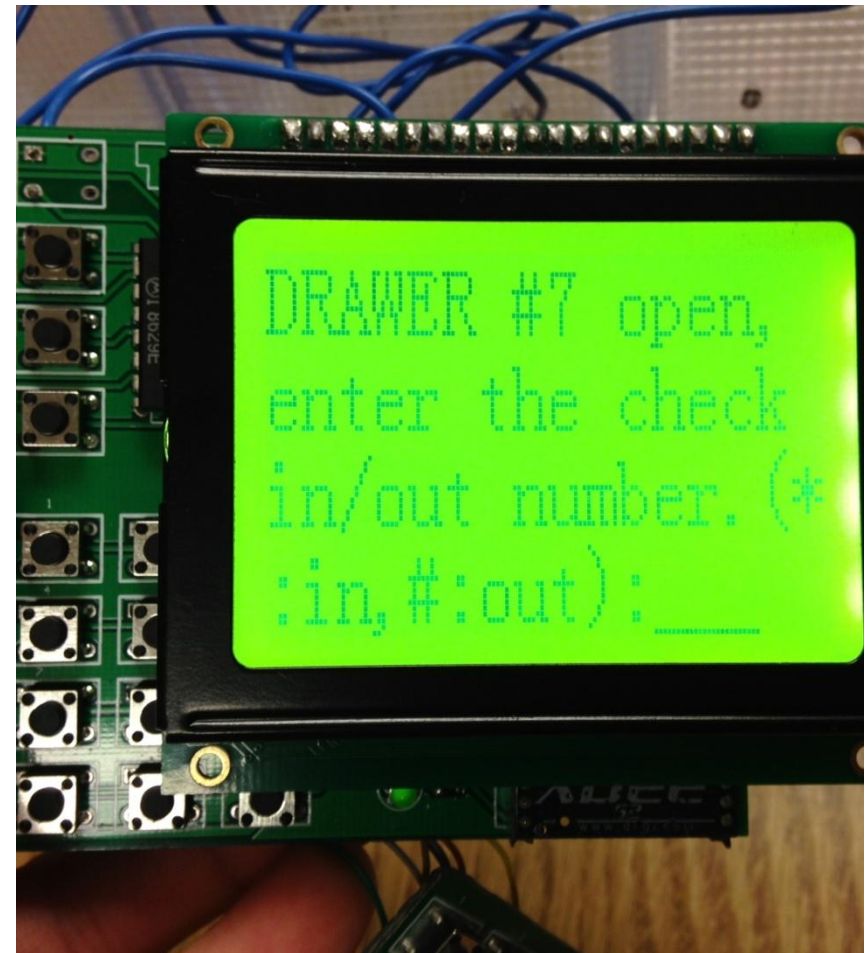


# *Schematic for LCD*





# Display for LCD



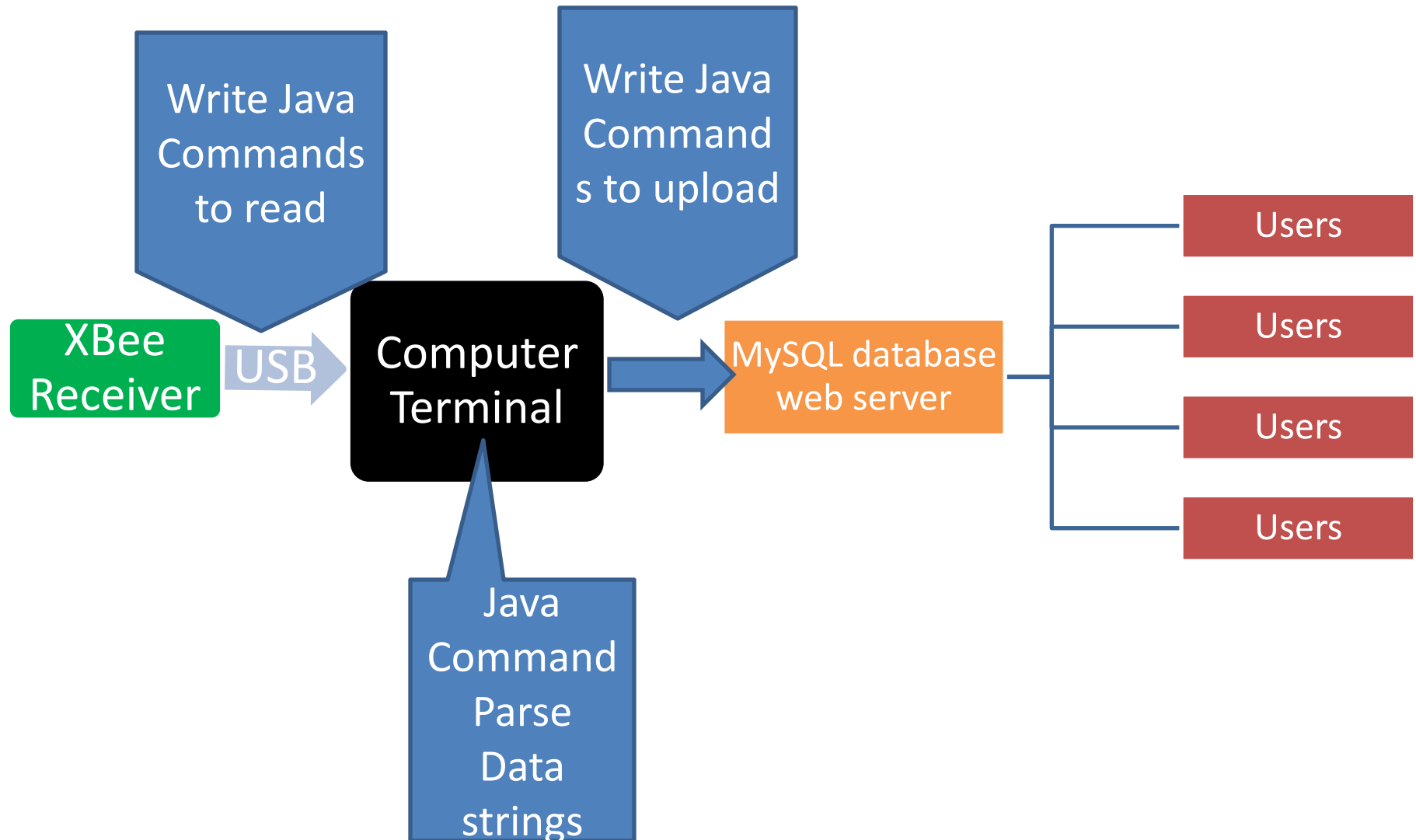
# Display for LCD





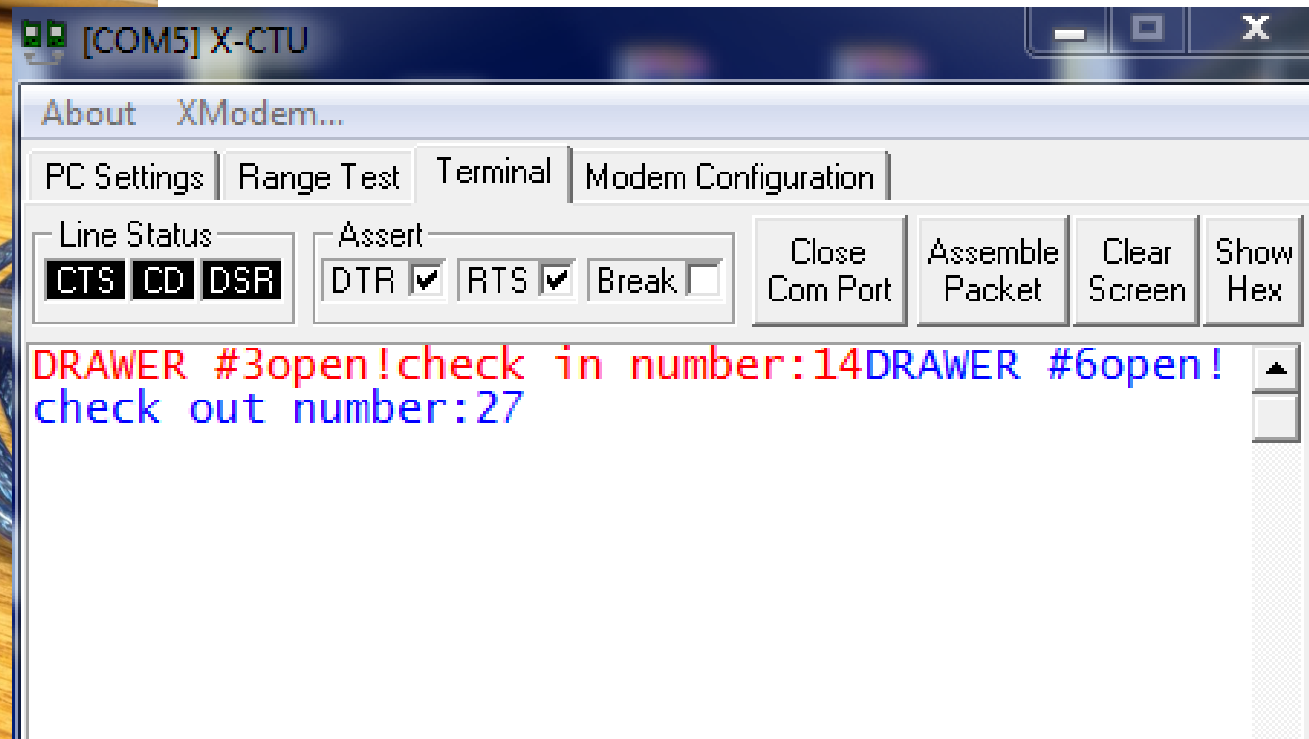
# Wireless Data Transmission

# Wireless Data Transmission





# Wireless Data Transmission



*X-CTU is downloaded from [www.digi.com](http://www.digi.com)*

# Sample Code

```
if ( commPort instanceof SerialPort )
{
    //read from serial port
    SerialPort serialPort = (SerialPort) commPort;

    serialPort.setSerialPortParams(9620,SerialPort.DATABITS_8,SerialPort.STOPBITS_1,SerialPort.
    PARITY_NONE);

    InputStream in = serialPort.getInputStream();
```

# Sample Code

```
//Send queries to mySQL
    try{
        Connection conn =
DriverManager.getConnection("jdbc:mysql://ardenview.com:3306/ardencfg_SD",
ardencfg_real","1q2w3e");
```

.....

.....

```
        //Update the amount
        currentAmount += amount;

        //Upload the amount to the database
        sql = "Update drawer set amount= ? where id= ? ";
        PreparedStatement preparedStmt = conn.prepareStatement(sql);
        preparedStmt.setInt (1, currentAmount);
        preparedStmt.setInt (2, drawerNum);
        preparedStmt.executeUpdate();
        conn.close();
```

# MySQL Inventory

+ Options

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# MySQL Inventory

+ Options

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# Bugs and Improvements

```
in - Notepad
File Edit Format View Help
D
RAWER #3open!check in number:14
D
RAWER #4open!check in number:15

out - Notepad
File Edit Format View Help
D
RAWER #3open!check out number: 1
4
D
RAWER #4open!check out number: 1
5
```

Check in

Check out

*Output after fetching the data by Eclipse(Java)*

# Future Applications



Self-Serviced Library



Pharmacy Store

# Acknowledgement

- Professor Carney
- Justine Fortier
- ECE 445 staff
- Friends from ECE Parts Shop and Machine Shop

# Thank you!!!



# Questions?