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Automation In Gaming: The Ante M



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Background

One Friday night our group was sitting around playing Texas Holdem casually discussing what our senior design project was going to be. Like most amateur games of Texas Holdem, players often forgot when it was their turn and how much they needed to bet. Eventually we had the perfect senior design idea. This idea was to create a automated Texas Holdem table that would still give the players the nostalgic joy of playing the game on a table with chips and cards without all the fuss. The table should assist the players by keeping track of whose turn it is and how much each player needs to bet to stay in the game.

Abstract

The Ante M is a automated Texas Holdem table that uses nine RFID readers, four LCD screens, and four EoT buttons to help track the bets and the status of the game. It tracks the game by RFID tags that are placed on each card and chip. The things that the Ante M will help with include.

- Displaying the amount to call in the game.
- Display each persons individual chip count.
- Indicate when it is the start of a players turn.
- Provide a convenient cup holders for each player.

Basic Play

Imagine sitting down at a Texas Holdem table. Your light turns green instructing you that it is your turn. Your screen will indicate how much you need to bet to either call or to fold. You then proceed to place your desired amount of chips on your RFID reader and press your EoT button which will process your turn. Then your screen will update you with all of the information from the game.

Construction

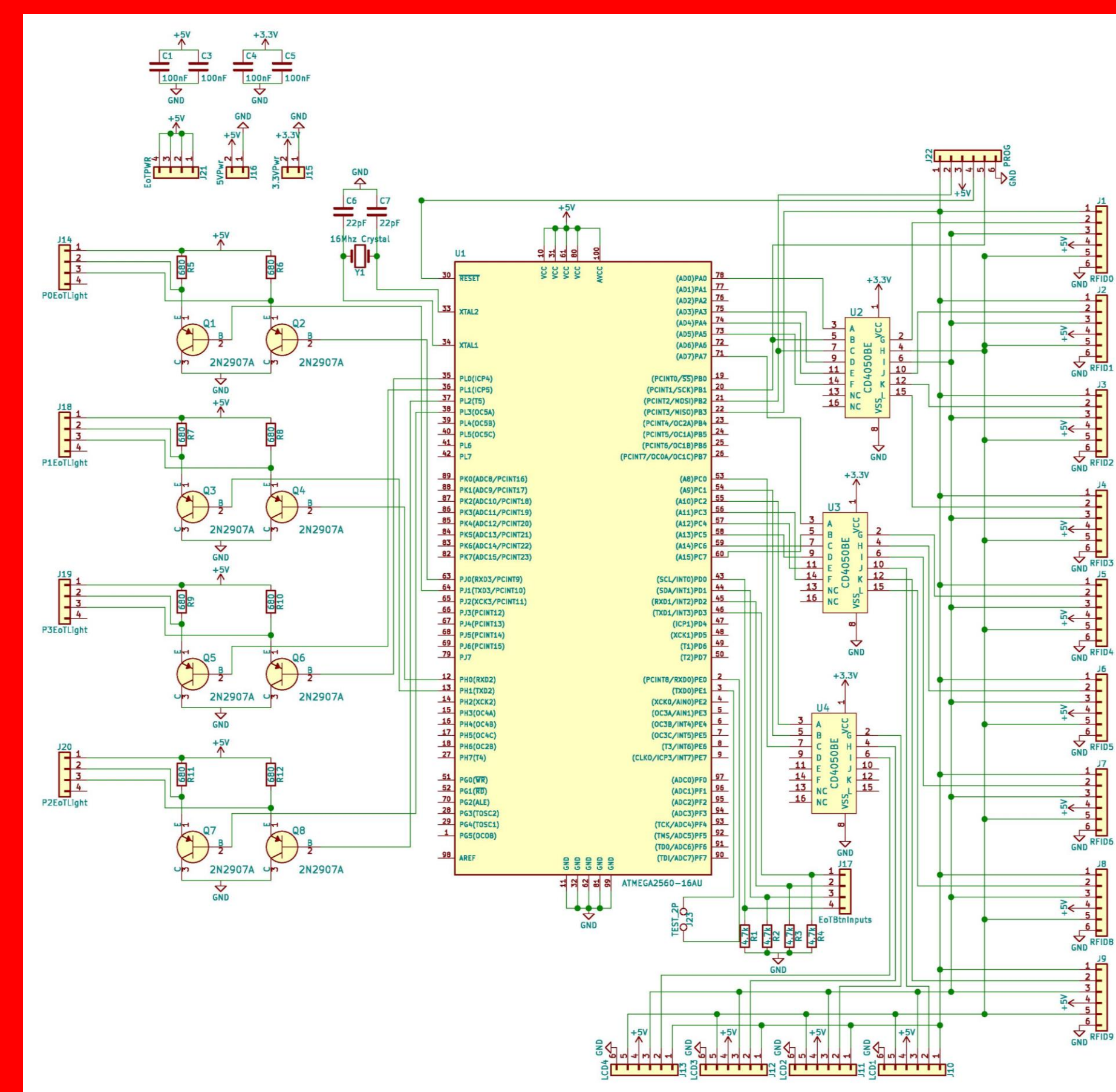


Figure 1: Circuit Schematic

A custom circuit board was created for this application. The circuit schematic is shown to the left in figure 1. The complexity of this project lies in the sheer amount of different channels that are communicating over SPI. The top of the table is shown in figure 2. The final PCB that was created for this project is shown in figure 3.

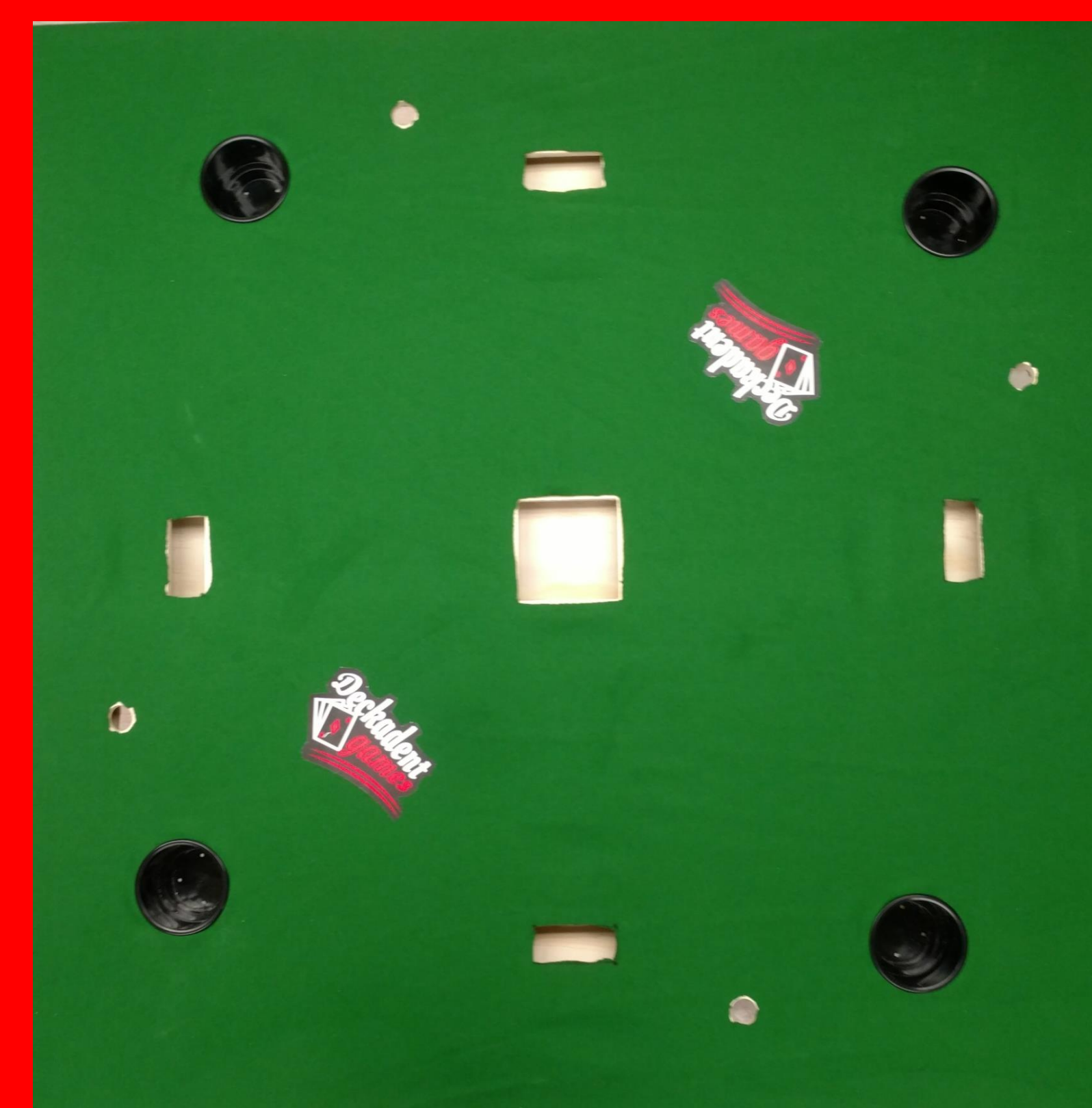


Figure 2: Table Top Layout

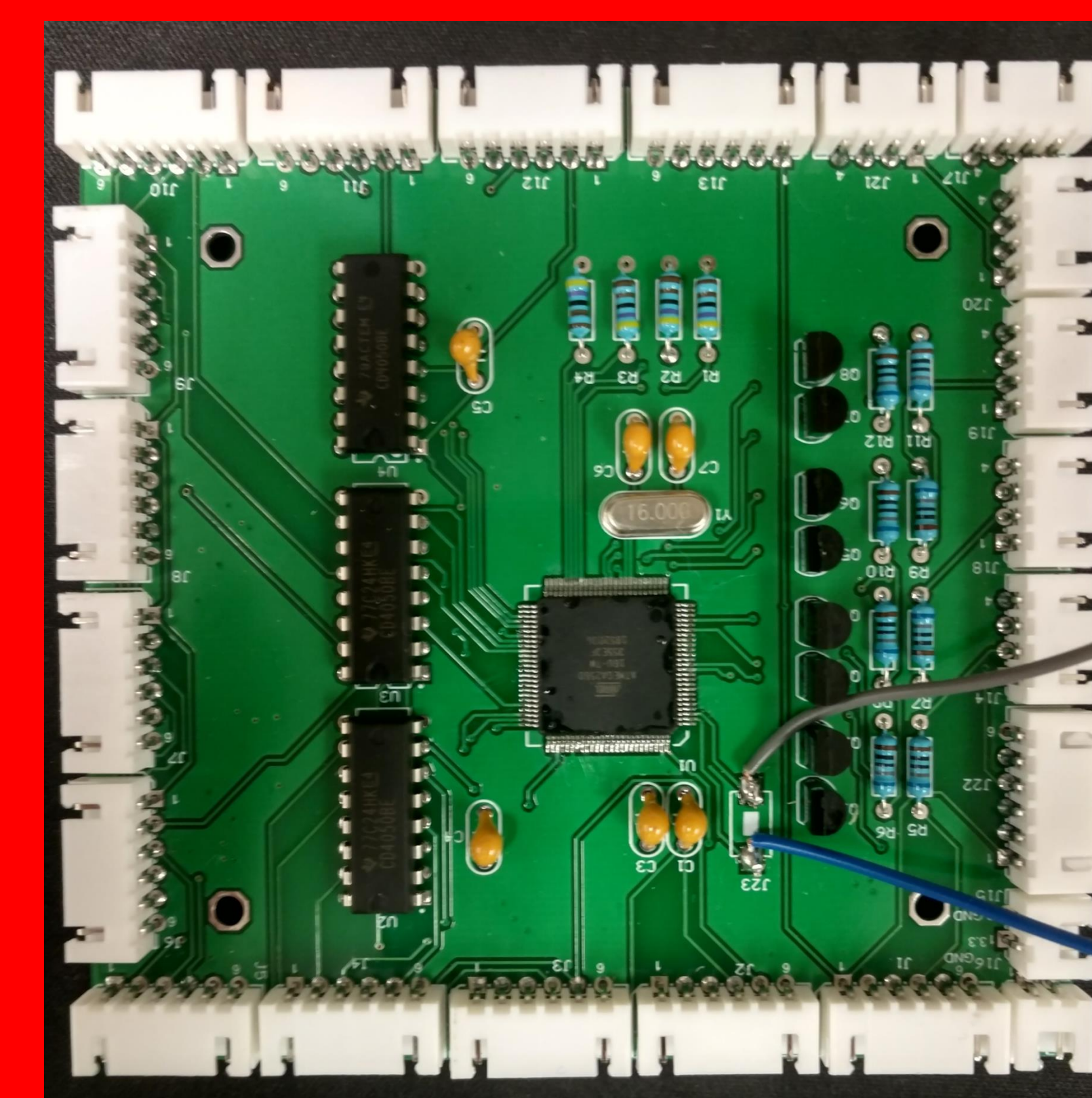


Figure 3: Printed Circuit Board

Testing

We neglected to include a crystal to the first revision of our PCB that utilizes the Atmel 2560 processor. While the next revision of PCB was being printed, we decided to hand solder wires onto the .5mm pitch SMD chip so we could start programming.



Figure 4: Precise Soldering

Prototype Testing Results

Hand Marker RFID Reader Test	Passed
Bet Marker RFID Reader Test	Passed
EoT Button Game Advancement Test	Passed
Game End Check Test	Passed
Declare Winner Function Test	Passed
LCD Function Test	Passed

Figure 5: Test Results