

Homework 13: User Manual*Due: Monday, May 1, at 5:00 PM*Team Code Name: RFID Xpress Group No. 10

NOTE: This is one of the last sections needed to finish the Final Report. This homework will count for 4% of each team member's grade, and therefore all team members should participate equally in completing it. The User Manual should be about 5 pages in length (one page per bullet).

User Manual Outline:

- **Brief (marketing-style) product description**
- **Product illustration annotated with callouts for each control/display**
- **Product setup instructions**
- **Product use instructions**
- **Product troubleshooting instructions**

Evaluation:

Component/Criterion	Score	Multiplier	Points
Product description	0 1 2 3 4 5 6 7 8 9 10	X 2	
Product illustration with callouts	0 1 2 3 4 5 6 7 8 9 10	X 2	
Product setup instructions	0 1 2 3 4 5 6 7 8 9 10	X 2	
Product use instructions	0 1 2 3 4 5 6 7 8 9 10	X 2	
Product troubleshooting instructions	0 1 2 3 4 5 6 7 8 9 10	X 2	
TOTAL			

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Product Description

Congratulations on your new purchase of the RFID Xpress self-checkout system. You have taken the next step in providing your customers with a quicker, more convenient checkout experience. Additionally, you and your employees will be extremely satisfied with the added benefits that RFID technology will bring to maintaining your product inventory.

The RFID Xpress system features the following amenities that your customers will love:

- A backlit, easy-to-read LCD screen for guiding the customers' checkout process and displaying the shopping cart
- A PIN entry keypad with large, durable buttons and high contrast laser engraving for capturing user selections
- A quick and quiet 58mm kiosk thermal printer for printing quality receipts of purchase
- A slim, short-range, external RFID reader for accurately scanning customer key fobs and products

This system was designed with your store in mind. Your self-checkout aisle can be ready in minutes simply by bolting on the RFID Xpress system to your already existing checkout station. Simply plug in the provided power cord and Ethernet cable and your RFID Xpress system is ready to be used. You can monitor your product inventory from any internet-enabled computer terminal in your store and watch it update as products arrive in the warehouse and leave after purchase.

Your customers will be rushing to get a key fob and register for the RFID Xpress self-checkout service. Your customer service representatives can quickly and easily add and manage customer accounts by entering their personal information into the easy-to-modify customer database. You and your customers can rest assured that privacy is adequately protected because a key fob cannot be used without providing the proper PIN, as determined by the customer when the account is created. Both you and your customers will benefit from the improved online billing method, which can be easily implemented with the system, and can help save valuable natural resources by choosing to email receipts instead of print them.

Continue reading to learn more about the features of your new RFID Xpress system, how to set it up and use it, and how to troubleshoot problems in the unlikely event that they occur.

Product Illustration

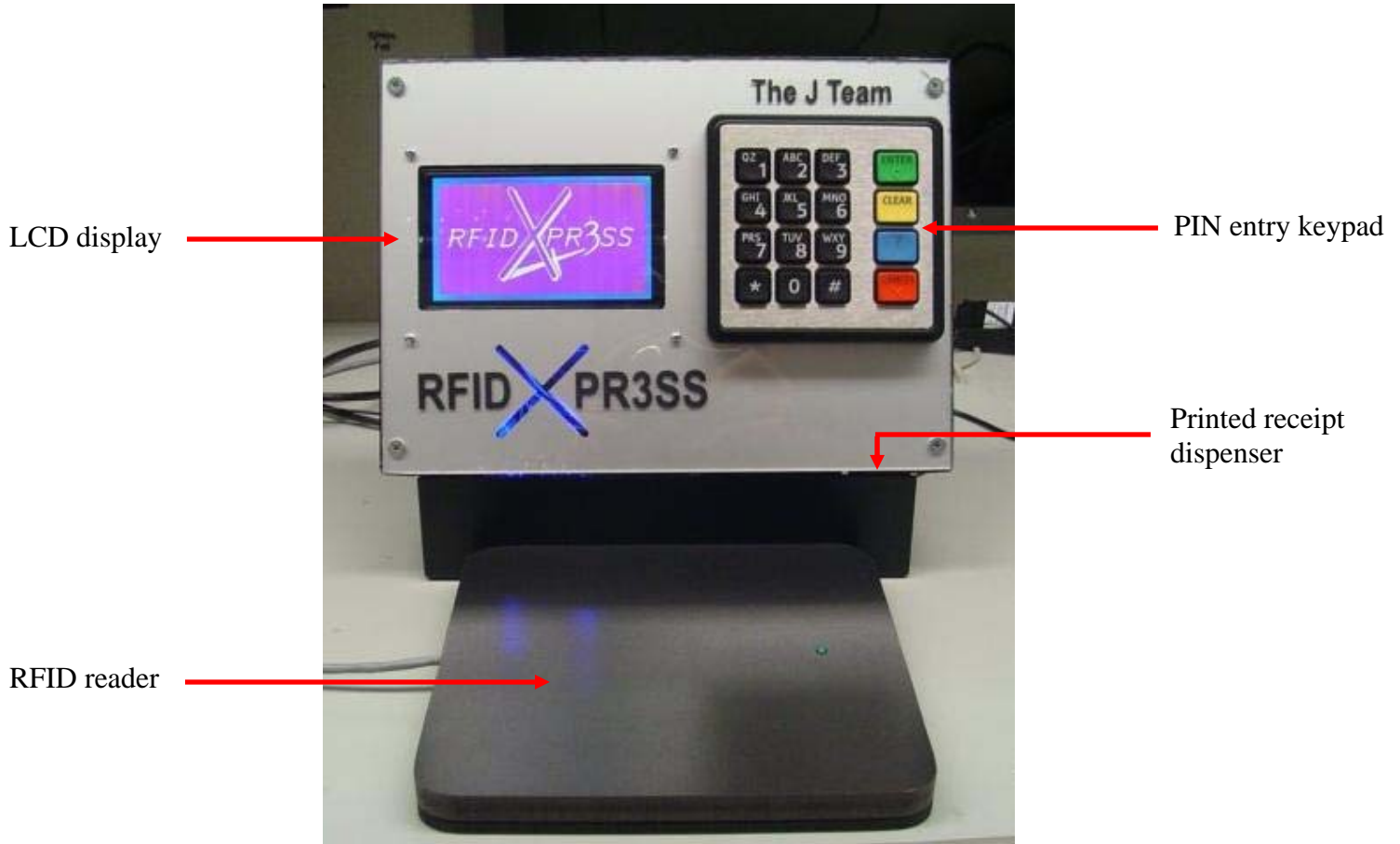


Figure 1 – Front View

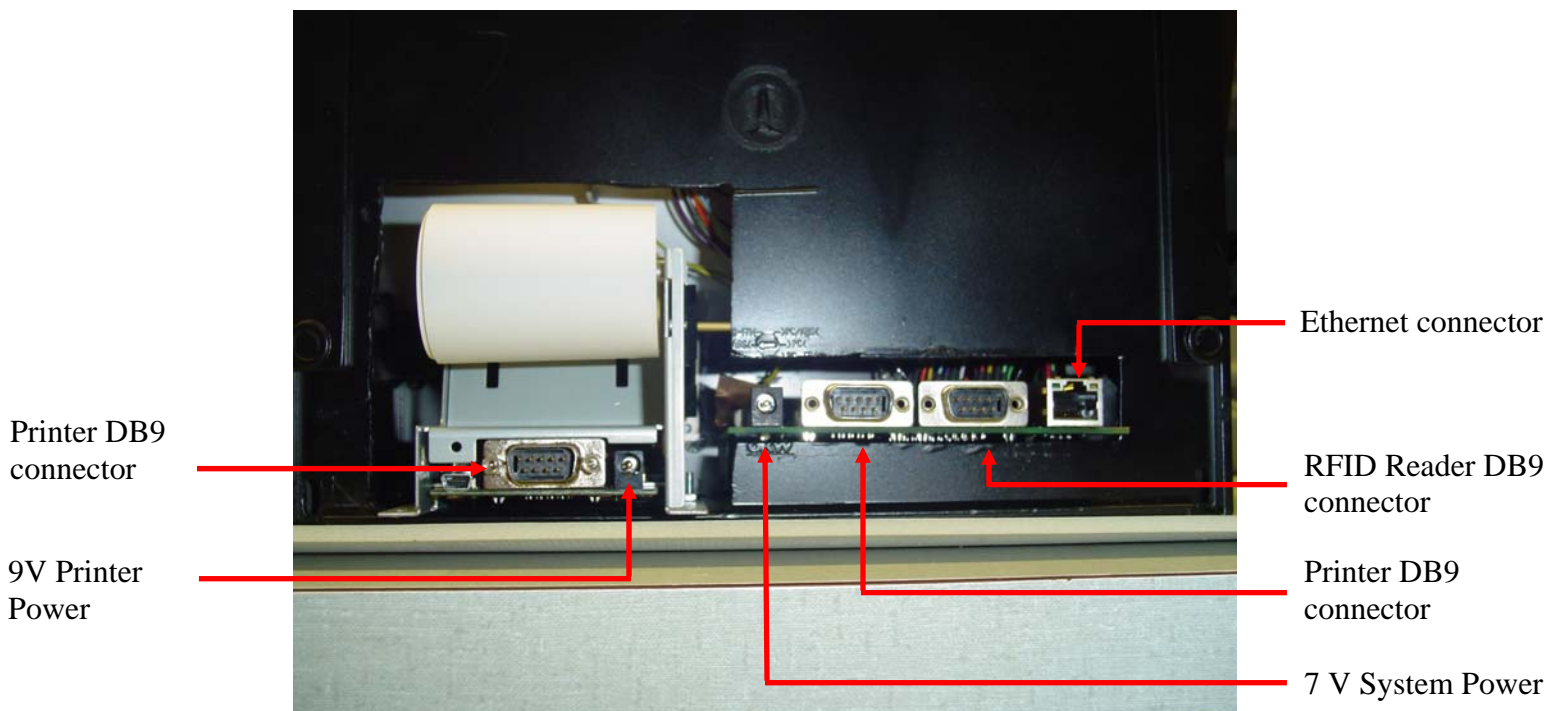


Figure 2 – Rear View



Figure 3 – Side View



Confirm Selection
or Finish Session

Backspace/Remove
Last Item

Help

Cancel Session

Figure 4 – PIN Entry Keypad

Setup Instructions

Prior to using the RFID Xpress system, make sure that you have correctly installed a third party system to scan palettes of products as they enter your warehouse and automatically populate the product database with the new inventory serial numbers.

After that, setting up the RFID Xpress self-checkout system is quick and simple. Just perform the following easy steps:

Placement & Connectors

1. Place the enclosure on a stable surface atop an already existing self-checkout aisle counter.
2. Place the RFID receiver pad in front of the enclosure (usually above the location of your old UPC scanner).
3. Connect the DB9 cable from the RFID reader into the appropriate port on the back of the enclosure (see Fig. 2).
4. Connect the DB9 cable from the printer (inside the enclosure) to the appropriate port on the back of the enclosure (see Fig. 2).
5. Connect the CAT5 Ethernet cable into the appropriate port on the back of the enclosure (see Fig. 2), and plug the other end of the cable into a nearby Ethernet router.

Setting Up the Java UDP Server

1. Load the software from the provided CD onto a computer connected to the same Ethernet router.
2. Simply double-click the provided executable on the computer.

Configuring the Router

1. Plug the other 7 V power cable into the coaxial socket on the back of the enclosure (see Fig. 2), and plug the other end into a standard 110 V power supply socket. The LCD should display the following:

**Figure 5 – LCD Startup Screen**

2. Using your router's IP configuration tool (see your router's documentation), find the RFID Xpress system by its MAC address (see your system's serial number label), and set the RFID Xpress system's static IP address to be 192.168.2.3.
3. Using your router's IP configuration tool (see your router's documentation), find the computer that the UDP server is running on and set its static IP address to be 192.168.2.1.
4. Once the IP addresses have been set, the system should establish a connection with the server and the LCD should display the following:

**Figure 6 – LCD Connection Established Screen**

Once your router has been properly configured and a connection has been established, your customers are ready to scan products and check out!

Product Use Instructions

The RFID Xpress self-checkout system is easy for your customers to use. Prior to using the self-checkout system, the customer needs to visit your customer service desk to set up an account. He or she will need to provide the following personal information:

- Full Name
- Email Address
- 4-digit PIN
- Credit Card Information for Online Payment (Optional)

Once this information has been provided, the customer will be given a key fob to attach to his or her keychain. The key fob contains a unique serial number that will identify the customer. That serial number will be added to the database and linked with the customer's personal information. Once the customer's account has been established and added to the database, he or she just needs to follow these simple steps to check out (written from the customer's perspective):

1. When you're finished shopping, scan your key fob above the RFID reader. The green light on the reader will illuminate when an RFID tag has been read.
2. If the serial number on your key fob is located in the database, you will be prompted to enter your 4-digit PIN. Using the keypad, enter each of the four digits, then press "Enter." If you make a mistake, you can press "Clear" to erase one digit at a time. If the serial number on the key fob was not located in the database, the LCD will show that the customer was not recognized and will return to the startup screen.
3. If the PIN matched the PIN stored in the database, the LCD will prompt you to scan your first item. If it did not match, then the LCD will alert you that an incorrect PIN was entered and will return to the startup screen.
4. When the LCD prompts you, you may begin scanning your items. The LCD will update to display the items' names and prices. It will also display the number of items in the cart, as well as the cart's total. Should you wish to remove an item from the cart, simply press the "Clear" button and the LCD will prompt you to confirm your choice. Should you wish to cancel your shopping session, simply press the "Cancel" button and the LCD will prompt you to confirm your choice.
5. When you are finished scanning your items, press the "Enter" button, and the LCD will prompt you to choose between printing a receipt in addition to receiving an email

receipt. If you choose to print your receipt, the receipt will exit the RFID Xpress system below the keypad.

6. Pull down on the receipt to detach it, and then check your email using your standard email client when you get home for your e-receipt.

Troubleshooting

The system won't initialize (won't display the "Please Scan" prompt)

The system most likely cannot establish an Ethernet link to the server. First, check to make sure that the CAT5 cable is securely connected to the system and to the router. If that is OK, then check to make sure that the router is properly configured to the RFID Xpress system's static IP address (see the setup section of this document). Finally, make sure that the Java UDP server is running correctly on the appropriate computer.

The LCD won't display anything at all (or displays random images)

Check to make sure that the power is properly connected. The blue LEDs inside of the RFID Xpress enclosure are a good indicator of power. If the power is connected properly, the problem may be with the LCD internal connections, so do not open the case yourself. Please call the support center at 1-800-RFIDXPRESS.

Customer's key fob returns "Customer Not Recognized" message

Check to make sure that the customer has already registered with customer service. If so, consider issuing them a new key fob and updating the database. If this happens repeatedly, call the support center at 1-800-RFIDXPRESS.

Customer's PIN not matched properly

Check to make sure that the customer registered their PIN properly with customer service. If this does not rectify the problem, assist them in updating their PIN in the database.

Receipt does not print

Check to make sure that the DB9 cable is properly connected as discussed in the setup section of this document (see Fig. 2). If that does not fix the problem, make sure that there is paper in the printer. Otherwise, call the support center at 1-800-RFIDXPRESS.

Emails not being sent

Make sure that the server computer has general internet connectivity. Also, make sure that the Java Server has been properly configured to send email over the proper email server. Call the support center at 1-800-RFIDXPRESS for assistance.

“Item Not Recognized”

The item is likely not in the database. This means that the item has either been purchased previously, or that it was not properly inserted into the database. Have a customer service representative assist the customer in entering the item into the database.