**RFID PIC Pseudo Code**

Turn off analog pins

Configure I/O pins

Configure SCI communication

Configure SPI as slave

Setup Timer0 with 256 prescaler

Loop Forever

Call Check Async Communication

Call Check Sync Communication

Call Check Water Logged Sensor

Repeat

**Check Water Logged Sensor:**

If water logged input from security controller is set high

Set flags indicating water logged

Else

Clear flags indicating water logged

End

**Check Sync Communication:**

If byte has arrived on SPI

Read byte (and ignore it)

If data ready to be written (RFID # and Security controller #s)

write out next byte

If all bytes have been written

Clear flags indicating a message is ready

end

Else if water log flag is set

Respond with water log indicating byte

Else

Respond with "no data" byte

End

End

**Check Async Communication**

If security controller communication in progress

Call Check Security

Else If TX Ready

Call TX to Security Controller

Else

Call Check RFID

End

**Check RFID:**

If an RFID message is in progress

If a byte has arrived on SCI

Store in next position in RX buffer

If last byte of message has arrived

Check message integrity (start, stop bytes, checksum)

If message is valid

Convert RFID data from ASCII to bytes

Store in RFID data buffer

Set flags indicating that a message is ready for security controller

End

End

Else

If too much time has passed since last byte

Timeout SCI communication

End

End

Else

If a byte has arrived on SCI

Store byte in start of RX buffer

Set flags indicating an RFID message is in progress

End

End

**TX to Security Controller:**

If last TX byte has completed

Write out next byte to be written

If all bytes have been written

Set flags to indicate message is no longer waiting to be sent

Set flag indicating that a message from the security controller is coming soon

End

End

**Check Security:**

If byte has arrived

Update timeout timer

Store incoming byte into RX buffer

If all bytes from message have arrived

If bytes pass complement test

Move bytes over to be TX out on SPI

Set flags to indicate new SPI msg

Clear flags indicating Security Controller communication is in progress

End

End

Else

If too much time has passed

Timeout async communication with security controller

End

End