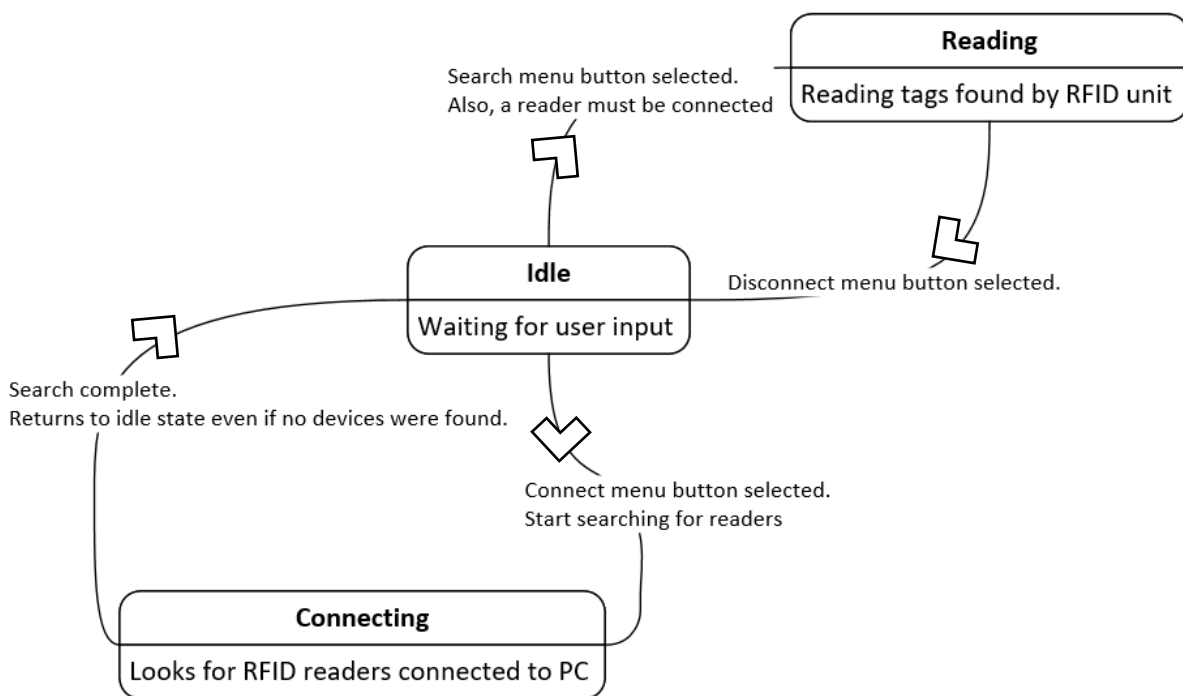# Assignment #2

The goal of this assignment was to connect the terminal application from the first assignment to an RFID reader, and send commands to the reader.

Our submission can put the reader into select mode, which reads all tags in the reader's range until the user wants to stop reading tags. The tag info is displayed in a list in the terminal window.

## Design



## Pseudocode

### Idle State

Function WinMain():

- The entry point of the application.
- Creates the user interface.
- Starts the event loop.
- When the event loop ends, closes thread handles.

Function WndProc():

- Processes the message sent to the window.
- Determines what happens when a menu button is clicked.
- The following actions are explicitly handled:
    - If the Connect menu item is clicked, the search() function is launched in a new thread.
    - If the Disconnect menu item is clicked, then the memory allocated to the RFID reader is freed.
    - If the Search menu item is clicked, then the RFID reader is put into select mode by launching the connect() function in a new thread. This mode reads all tags in range of the reader, and outputs the tag data to the window.
    - If the Exit menu item is clicked, the application exits.
- All other actions are handled by the default Windows event handler.

## Connecting State

Function createConnectThread():

- Wrapper function for the connect() function.
- Launches connect() in a new thread.

Function connect():

- Looks for RFID devices and readers connected to the computer.
- If no devices found, then a message box appears containing the text "No devices found".
- If a device was found, but no readers were found, then a message box appears containing the text "No readers found".
- Else, a reader was found. The reader can now be set into read mode.

## Reading State

Function search():

- Searches for tags in the RFID reader's range.
- Started when the user clicks the Search menu item.
- Can time out or fail.
- When a tag enters the reader's range, the callback function tagCallBack() is executed.
- Ends when the callback function returns false.

Function tagCallBack():

- Callback function for search() function.
- Executed when a tag enters the reader's range.
- If the tag is valid, then the tag info is printed to the terminal window, and the memory allocated for the tag is freed.
- If the Disconnect menu item is clicked, then this function will return false. This also causes the search function to terminate.