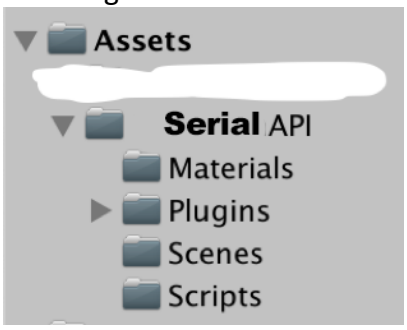
Arduino Unity Serial Plugin

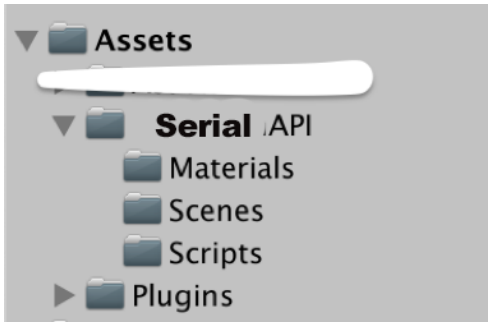
Requirements

1. Switch Scripting runtime version to 4.x as 3.5 is already deprecated (found in Build Settings)

2. Move the Plugin Folder to the main Assets Folder



Before



After

Supported Devices

1. Android
2. Windows PC

SerialHelper Class

Static Vars and Methods

1. CreateInstance (string *portName,* int *baudRate*)
    - portName: string identifying the port you are going to connect to
    - baudRate: default 9600

Properties and Methods

1. SendData(string *data*):
    - Send string data to the Serial devices
2. SendData (byte[] data):
    - Send byte array data to the Serial devices
3. Connect()
    - Connect to Serial device
    - Invokes 2 events:
        i. OnConnected: when successfully connected to the device
        ii. OnConnectionFailed: when failed to connect to the serial device
4. setLengthBasedStream()

- sets reading and writing mode of the stream based on its length.
  Example: Sending {0x02, 0x04, 0x65, 0xE5} from unity will result in sending: {0x55, 0x55, 0x00, 0x04, 0x02, 0x04, 0x65, 0xE5} knowing that 0x00 and 0x04 are the array length encoded on 2 bytes and 0x55, 0x55 are the preamble, to detect the start of the message. You don't have to worry about the encoding procedure or adding the preamble, as it is done automatically by the plugin.
  From the Arduino, to get the message follow this code:

```
void readBT()
{
  if(Serial.available() >= 2)
  {
    data_length = 0;
    //reading the preambles
    byte pre1 = Serial.read();
    byte pre2 = Serial.read();
    if(pre1 != 85 || pre2 != 85) return;
    while(Serial.available() < 2) continue;
    byte x1 = Serial.read();
    byte x2 = Serial.read();

    data_length = x1 << 8 | x2;

    data = new byte[data_length];
    i=0;
    while(i<data_length)
    {

      if(Serial.available()==0){
        continue;
      }
      timeout=0;
      data[i++] = Serial.read();
    }

    // process the data …

    delete[] data;
  }}
```

  Now sending messages from the Arduino, {0x02, 0x04, 0x65, 0xE5} will be sent as: {0x55, 0x55, 0x00, 0x04, 0x02, 0x04, 0x65, 0xE5}
  use this function to send from the arduino:

```
void sendBT(const byte *data, int length)
{
       byte len[4];
       //YOU HAVE TO PUT THE PREAMPLE WHEN SENDING FROM THE ARDUINO
       len[0] = 85; //preamble
       len[1] = 85; //preamble
       len[2] = (length >> 8) & 0x000000FF;
       len[3] = (length & 0x000000FF);
       Serial.write(len, 4);
       Serial.flush();
       Serial.write(data, l);
       Serial.flush();
}
```

5. setTerminatorBasedStream(string str)
   - set the writing and reading mode based on a terminator string to delimit the messages. Example, using \n (new line) to delimit incoming messages. "Hello\nHow are you" will be considered as 2 incoming messages in this case

6. setFixedLengthBasedStream(int length)
   set the reading mode based on the number of received bytes. Each "length" bytes will be considered 1 message
7. Disconnect()
   - This method must be called in the OnDestroy() method in a MonoBehaviour class:

```
void OnDestroy()
{
        helper.Disconnect();
}
```

8. isConnected()
   - returns True if we are connected to the serial device
9. Bool Available
   - returns True if we have incoming messages waiting to be read
10. Read()
    - Return a string representation of the incoming messages when available
    - In case of want binary data representation from the string, call

```
char[] data = bluetoothHelper.Read().ToCharArray ();
```

Events to Listen to

1. OnConnected
2. OnConnectionFailed
3. OnDataReceived
4. OnPermissionNotGranted

These events are already explained above,
To Listen to them, use this syntax:

```
//this could be written is the Start() function for example
bluetoothHelperInstance.OnConnected += OnConnectedFunction;


void OnConnectedFunction()
{
	//Yes, we are now connected, maybe we should start listening for incoming messages 😉
	bluetoothHelperInstance.StartListening();
}
```

Or this lambda expression syntax

```
bluetoothHelperInstance.OnConnected += () => {
	bluetoothHelperInstance.StartListening();
};
```

Thank you for using this plugin
You can always contact me via email abouzaidan.tony@gmail.com is you have any question.
This plugin will always be Here!