USB

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

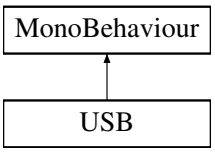
Chapter 4

Class Documentation

4.1 USB Class Reference

The USB library.

Inheritance diagram for USB:



Public Types

- enum IncomingOption { UpdateFunction = INCOMING_IN_UPDATE_FUNCTION , InvokedFunction = INCOMING_IN_INVOKED_FUNTION , ThreadedFunction = INCOMING_IN_THREADED_FUNCTION , UserInterfaceFunction = INCOMING_IN_USER_INTERFACE_FUNCTION }

  Enum of options for how to receive incoming data.
- enum OutgoingMessages { Start = OUTGOING_START , Reset = OUTGOING_RESET }

  An enum of messages to be sent to any Arduino.

Static Public Attributes

- static Thread threadedFunction

  A thread for ThreadedFunction().

Properties

- static string[] Configs `[get, private set]`

  A set of configs received from connected Arduinos.
- static string IncomingData = "" `[get, private set]`

  Incoming data from thread.

Private Member Functions

- void Start ()

  Pseudo-Constructor. Calls the ConnectSerialPorts() function.
- void OnApplicationQuit ()

  Pseudo-Destructor. Kills the threadedFunction thread.
- void OnGUI ()

  The user interface function. Receive incoming data.
- void Update ()

  The main function. Receive incoming data.
- string CatenateSerialPrefixAndPostfix (int postfix)

  Catenates the platform specific prefix and the iterated postfix.
- void CloseSerialPorts ()

  Close all serial ports.
- SerialPort ConnectSerialPort (int index, int baudRate)

  Open and return a single instance of SerialPort.
- void ConnectSerialPorts ()

  Connect to all possible SerialPort connections.
- void InvokedFunctionStart ()

  Start invoking the InvokedFunction() function.
- void InvokedFunctionStop ()

  Stop invoking the InvokedFunction() function.
- string OutgoingMessageToString (OutgoingMessages message)

  Transform OutgoingMessages enum into string.
- void ReceiveData (SerialPort serialPort, string catenatedSerialPort, int configIndex)

  The Invoked function. Receive incoming data.
- void ReceiveDatas ()

  Starts one instance of InvokedFunction(SerialPort, string) per serialPorts member.
- string ReceiveOptionToString (IncomingOption option)

  Transform ReceiveOption enum into string.
- void ResetArduinos ()

  Call the reset() function on each connected Arduino.
- void Teardown ()

  Pseudo-Destructor. Stop repeating functions, and shutdown Arduinos.
- void ThreadedFunction ()

  The threaded function. Receive incoming data.

Private Attributes

- bool debug = false

  Check to print debug tracers to console.
- readonly int[ ] serialBaudRates

  Baud rates (pair with Arduino).
- SerialPort[ ] serialPorts

  Successful serial port connections.
- IncomingOption incomingOption

  Choose when to receive incoming data.
- readonly Mutex mutex = new Mutex()

  A mutex.
- float invokedFunctionDelay = 0.1f

  Delay between InvokedFunction() calls.

Static Private Attributes

- const int SERIAL_TIMEOUT = 1000

  Timeout for incoming data (milliseconds).
- const int SERIAL_POSTFIX_MIN_WINDOWS = 0

  Minimum COM port (Windows).
- const int SERIAL_POSTFIX_MIN_LINUX = 0

  Minimum COM port (Linux).
- const int SERIAL_POSTFIX_MIN_MAC = 0

  Minimum COM port (Mac).
- const int SERIAL_POSTFIX_MAX_WINDOWS = 256

  Maximum COM port (Windows).
- const int SERIAL_POSTFIX_MAX_LINUX = 256

  Maximum COM port (Linux).
- const int SERIAL_POSTFIX_MAX_MAC = 256

  Maximum COM port (Mac).
- const string SERIAL_PREFIX_WINDOWS = ¨COM¨

  The device prefix (Windows).
- const string SERIAL_PREFIX_LINUX = ¨/dev/ttyACM¨

  The device prefix (Linux).
- const string SERIAL_PREFIX_MAC = ¨¨

  The device prefix (Mac).
- const int INCOMING_IN_UPDATE_FUNCTION = 0

  Wait for incoming data using the Update() event function.
- const int INCOMING_IN_INVOKED_FUNTION = 1

  Wait for incoming data using InvokeRepeating(string).
- const int INCOMING_IN_THREADED_FUNCTION = 2

  Wait for incoming data on a new thread.
- const int INCOMING_IN_USER_INTERFACE_FUNCTION = 3

  Wait for incoming data on the UI thread.
- const int OUTGOING_START = 0

  Calls the Arduino's start() function.
- const int OUTGOING_RESET = 1

  Calls the Arduino's reset() function.
- const string INVOKED_FUNCTION = ¨ReceiveDatas¨

  For use with InvokeRepeating(string, float, float) and CancelInvoke(string) functions.

4.1.1 Detailed Description

The USB library.

4.1.2 Member Enumeration Documentation

4.1.2.1 IncomingOption

```
enum USB.IncomingOption
```

Enum of options for how to receive incoming data.

Enumerator

UpdateFunction	
InvokedFunction	
ThreadedFunction	
UserInterfaceFunction	

4.1.2.2 OutgoingMessages

```
enum USB.OutgoingMessages
```

An enum of messages to be sent to any Arduino.

Max range of 256. Must be paired with a similar enum on Arduino.

Enumerator

Start	
Reset	

4.1.3 Member Function Documentation

4.1.3.1 CatenateSerialPrefixAndPostfix()

```
string USB.CatenateSerialPrefixAndPostfix (
            int postfix )  [inline], [private]
```

Catenates the platform specific prefix and the iterated postfix.

Warning: In a UNITY_EDITOR_WIN build, the UNITY_STANDALONE_WIN section is being reached erroneously.

Parameters

postfix	The iterated postfix.

Returns

Returns the catenated sum of the platform specific prefix and the iterated postfix.

4.1.3.2 CloseSerialPorts()

```
void USB.CloseSerialPorts ( )  [inline], [private]
```

Close all serial ports.

4.1.3.3 ConnectSerialPort()

```
SerialPort USB.ConnectSerialPort (
            int index,
            int baudRate )  [inline], [private]
```

Open and return a single instance of SerialPort.

Parameters

index	The serial port index.
baudRate	The serial baud rate.

Returns

An instance of SerialPort.

4.1.3.4 ConnectSerialPorts()

```
void USB.ConnectSerialPorts ( )  [inline], [private]
```

Connect to all possible SerialPort connections.

Cross-Platform Steps:

- Count the connected devices.
- Use count to define the size of serialPorts and configs.
- Populate serialPorts and configs.
- Start a function to receive incoming data.

Warnings: In C, the namespace Connect is already taken.

4.1.3.5 InvokedFunctionStart()

```
void USB.InvokedFunctionStart ( )  [inline], [private]
```

Start invoking the InvokedFunction() function.

4.1.3.6 InvokedFunctionStop()

```
void USB.InvokedFunctionStop ( )  [inline], [private]
```

Stop invoking the InvokedFunction() function.

4.1.3.7 OnApplicationQuit()

```
void USB.OnApplicationQuit ( )  [inline], [private]
```

Pseudo-Destructor. Kills the threadedFunction thread.

4.1.3.8 OnGUI()

```
void USB.OnGUI ( )  [inline], [private]
```

The user interface function. Receive incoming data.

4.1.3.9 OutgoingMessageToString()

```
string USB.OutgoingMessageToString (
            OutgoingMessages message )  [inline], [private]
```

Transform OutgoingMessages enum into string.

Parameters

message	OutgoingMessages member to transform.

Returns

A string transformed from a OutgoingMessages member.

4.1.3.10 ReceiveData()

```
void USB.ReceiveData (
            SerialPort serialPort,
            string catenatedSerialPort,
            int configIndex )  [inline], [private]
```

The Invoked function. Receive incoming data.

Parameters

serialPort	A member of serialPorts.
catenatedSerialPort	A member of config paired with a member of serialPorts.

4.1.3.11 ReceiveDatas()

```
void USB.ReceiveDatas ( )  [inline], [private]
```

Starts one instance of InvokedFunction(SerialPort, string) per serialPorts member.

4.1.3.12 ReceiveOptionToString()

```
string USB.ReceiveOptionToString (
            IncomingOption option )  [inline], [private]
```

Transform ReceiveOption enum into string.

Parameters

option	ReceiveOption member to transform.

Returns

A string transformed from a ReceiveOption member.

4.1.3.13 ResetArduinos()

```
void USB.ResetArduinos ( )  [inline], [private]
```

Call the reset() function on each connected Arduino.

Cannot be named Reset.

4.1.3.14 Start()

```
void USB.Start ( )  [inline], [private]
```

Pseudo-Constructor. Calls the ConnectSerialPorts() function.

4.1.3.15 Teardown()

```
void USB.Teardown ( )  [inline], [private]
```

Pseudo-Destructor. Stop repeating functions, and shutdown Arduinos.

4.1.3.16 ThreadedFunction()

```
void USB.ThreadedFunction ( )  [inline], [private]
```

The threaded function. Receive incoming data.

4.1.3.17 Update()

```
void USB.Update ( )  [inline], [private]
```

The main function. Receive incoming data.

4.1.4 Member Data Documentation

4.1.4.1 debug

```
bool USB.debug = false  [private]
```

Check to print debug tracers to console.

4.1.4.2 INCOMING_IN_INVOKED_FUNTION

```
const int USB.INCOMING_IN_INVOKED_FUNTION = 1  [static], [private]
```

Wait for incoming data using InvokeRepeating(string).

4.1.4.3 INCOMING_IN_THREADED_FUNCTION

```
const int USB.INCOMING_IN_THREADED_FUNCTION = 2  [static], [private]
```

Wait for incoming data on a new thread.

4.1.4.4 INCOMING_IN_UPDATE_FUNCTION

```
const int USB.INCOMING_IN_UPDATE_FUNCTION = 0  [static], [private]
```

Wait for incoming data using the Update() event function.

4.1.4.5 INCOMING_IN_USER_INTERFACE_FUNCTION

```
const int USB.INCOMING_IN_USER_INTERFACE_FUNCTION = 3  [static], [private]
```

Wait for incoming data on the UI thread.

4.1.4.6 incomingOption

```
IncomingOption USB.incomingOption  [private]
```

Choose when to receive incoming data.

4.1.4.7 INVOKED_FUNCTION

```
const string USB.INVOKED_FUNCTION = ¨ReceiveDatas¨  [static], [private]
```

For use with InvokeRepeating(string, float, float) and CancelInvoke(string) functions.

4.1.4.8 invokedFunctionDelay

```
float USB.invokedFunctionDelay = 0.1f  [private]
```

Delay between InvokedFunction() calls.

4.1.4.9 mutex

```
readonly Mutex USB.mutex = new Mutex()  [private]
```

A mutex.

4.1.4.10 OUTGOING_RESET

```
const int USB.OUTGOING_RESET = 1  [static], [private]
```

Calls the Arduino's reset() function.

4.1.4.11 OUTGOING_START

```
const int USB.OUTGOING_START = 0  [static], [private]
```

Calls the Arduino's start() function.

4.1.4.12 SERIAL_POSTFIX_MAX_LINUX

```
const int USB.SERIAL_POSTFIX_MAX_LINUX = 256  [static], [private]
```

Maximum COM port (Linux).

4.1.4.13 SERIAL_POSTFIX_MAX_MAC

```
const int USB.SERIAL_POSTFIX_MAX_MAC = 256  [static], [private]
```

Maximum COM port (Mac).

4.1.4.14 SERIAL_POSTFIX_MAX_WINDOWS

```
const int USB.SERIAL_POSTFIX_MAX_WINDOWS = 256  [static], [private]
```

Maximum COM port (Windows).

4.1.4.15 SERIAL_POSTFIX_MIN_LINUX

```
const int USB.SERIAL_POSTFIX_MIN_LINUX = 0  [static], [private]
```

Minimum COM port (Linux).

4.1.4.16 SERIAL_POSTFIX_MIN_MAC

```
const int USB.SERIAL_POSTFIX_MIN_MAC = 0  [static], [private]
```

Minimum COM port (Mac).

4.1.4.17 SERIAL_POSTFIX_MIN_WINDOWS

```
const int USB.SERIAL_POSTFIX_MIN_WINDOWS = 0  [static], [private]
```

Minimum COM port (Windows).

4.1.4.18 SERIAL_PREFIX_LINUX

```
const string USB.SERIAL_PREFIX_LINUX = ¨/dev/ttyACM¨  [static], [private]
```

The device prefix (Linux).

4.1.4.19 SERIAL_PREFIX_MAC

```
const string USB.SERIAL_PREFIX_MAC = ¨¨  [static], [private]
```

The device prefix (Mac).

4.1.4.20 SERIAL_PREFIX_WINDOWS

```
const string USB.SERIAL_PREFIX_WINDOWS = ¨COM¨  [static], [private]
```

The device prefix (Windows).

4.1.4.21 SERIAL_TIMEOUT

```
const int USB.SERIAL_TIMEOUT = 1000  [static], [private]
```

Timeout for incoming data (milliseconds).

4.1.4.22 serialBaudRates

```
readonly int [] USB.serialBaudRates  [private]
```

Initial value:

```
= {
        9600,
        14400,
        19200,
        28800,
        31250,
        38400,
        57600,
        115200,
        300,
        600,
        1200,
        2400,
        4800,
    }
```

Baud rates (pair with Arduino).

4.1.4.23 serialPorts

```
SerialPort [] USB.serialPorts  [private]
```

Successful serial port connections.

4.1.4.24 threadedFunction

```
Thread USB.threadedFunction  [static]
```

A thread for ThreadedFunction().

4.1.5 Property Documentation

4.1.5.1 Configs

```
string [] USB.Configs  [static], [get], [private set]
```

A set of configs received from connected Arduinos.

4.1.5.2 IncomingData

```
string USB.IncomingData = ""  [static], [get], [private set]
```

Incoming data from thread.

The documentation for this class was generated from the following file:

- USB.cs

Chapter 5

File Documentation

5.1 USB.cs File Reference

Classes

- class USB

  The USB library.

Index