pfodESP8266WiFi – V2.0.3

Description

pfodESP8266WiFi is a non-blocking version of Ivan Grokhotkov et al's ESP8266WiFi library combined with their ESP8266WebServer library. The file names have been changed to make the include's unique, but otherwise almost all the code is the same, except that calls to WiFiClient.write() now do not block unless the ESP8266 is still busy handling the previous packet send (waiting for ACK). One new method has been added, **isSendWaiting()**, so you can check if the ESP8266 is still busy handling the previous packet. If **isSendWaiting()** returns true then calling WiFiClient.write() will block until the previous packet is ACKed (or a 5sec timeout occurs).

Using the library, ensures the main sketch loop() remains responsive (not blocked) while sending WiFi packets. The standard library blocks the main loop for 10mS to 200mS while sending a packet, depending on how long it takes the remote client to ACK the packet.

This library also includes the ESP8266WebServer library, but the web server clients have not been modified to use the pfodESP8266BufferedClient and sending web pages larger then 1460 bytes will block the main loop.

Version 1.0.1 adds pfodESP8266Utils to simplify the main sketch.
Version 1.0.2 returns pointer to pfodESP2866BufferedClient from connect()
Version 1.0.3 minor change to includes
Version 1.0.4 correction to urldecoder in Utils
Version 1.0.5 correct includes, added pfodESP8266WebConfig and rev11 example
Version 1.0.6 ipStrToNum now handles strings like “10, 1, 1, 200” as well as “10.1.1.200”
Version 1.0.7 fixed setting staticIP after using DHCP config
Version 2.0.1 updated library to use ESP8266 V2.0.0 code base.
Version 2.0.2 revised pfodESP8266WebConfig methods
Version 2.0.3 remove example that no longer works

Methods

Except as noted here the methods are the same as the ESP8266WiFi and ESP2866WebServer libraries

WiFiClient.write(...) – first call does not block, subsequent calls only block if the ESP8266 is still waiting for the previously send packet be ACKed by the remote client.

WiFiClient.isSendWaiting() – Additional method, returns true if the ESP8266 is still waiting for the previously send packet be ACKed by the remote client.

PfodESP8266BufferedClient – Additional class, extends from Stream and provides buffered non-blocking TCP writes via WiFiClient.

PfodESP8266BufferedClient() – constructor

pfodESP8266BufferedClient.connect(WiFiClient*) – attaches an ESP8266 WiFiClient for TCP reads and buffered non-blocking writes.

pfodESP8266BufferedClient.write(..) – preforms a buffered non-blocking write to the TCP/IP WiFi connection. Bytes are buffered in a 1460 byte buffer until either the buffer is full OR there have been not bytes added for 10mS. If the ESP2866 is still busy handling the previous packet send (waiting for ACK) AND there is still space in the 1460 buffer, the write is delayed until either the buffer is full OR the ESP2866 is not busy.
If the call to write() blocks for more then 5 seconds then the connection is closed and the write() returns **((size_t) - 1))**
NOTE: *All the methods inherited from Stream, as well as pfodESP8266BufferedClient.connected(), will first check if there is delayed buffered data that should be written (i.e. >10mS since last data added to buffer). In order to write the delayed buffered data your sketch must call one of these methods every loop(). This is usually the case as pfodESP8266BufferedClient.available() and/or pfodESP8266BufferedClient.connected() are normally called each loop.*

pfodESP8266BufferedClient.isSendWaiting() – returns true if the ESP8266 is still waiting for the previously send packet be ACKed by the remote client. (see the examples for how to use this)

pfodESP8266BufferedClient.flush() – writes any buffered data to the WiFi connection. This will block if the ESP2866 is still waiting for the previously send packet be ACKed by the remote client.

pfodESP8266BufferedClient.setDebugStream(Stream* debugOut) – sets the debug output stream. This must be called before any other method in this class is called. It is only used if you modify the library code to turn on debugging.

pfodESP8266BufferedClient also implements all the other Stream methods.

Example

See the pfodESP8266BufferedClient example sketches included with the library. UARTtoWiFiBridge shows how isSendWaiting() can be used to prevent blocking and SimplifiedUARTtoWiFiBridge shows how to use pfodESP2866BufferedClient to provide non-blocking WiFi writes.