WiFi 5 click

From MikroElektonika Documentation

WiFi 5 click carries Gainspan's GS1500M ultra low-power Wi-Fi module with a PCB trace antenna (external IPX antenna connector also available). GS1500M supports Wi-Fi PHY speeds of up to 72.2mbps. The module is fully compliant with both IEEE 802.11b/g/n as well as with the requirements of the Wi-Fi alliance. Security features include support for WEP/WPA/WPA2, Adhoc and WPS (Wi-Fi protected setup). On the hardware side, the GS1500M module comprises two ARM7 44MHz chips (one for the radio, the other for applications), as well as on-chip Flash and SRAM. WiFi 5 click communicates with the target MCU through the mikroBUS™ UART interface (TX, RX), with additional functionality provided by RST and Prog pins (the latter in place of default mikroBUS™ AN pin).

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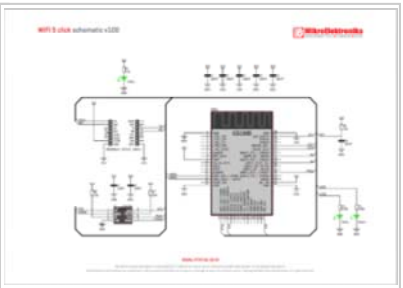
IC/Module	Gainspan GS1500M (https://s3.amazonaws.com/site_support/uploads/document_upload/GS1500M-PB.pdf)
Interface	UART (TX, RX), RST, Prog
Power supply	3.3V
Website	www.mikroe.com/click/wifi-5 (http://www.mikroe.com/click/wifi-5)

Features and usage notes



Schematic also available in PDF (http://cdn-docs.mikroe.com/images/3/33/WiFi_5_click_schema

WiFi 5 click is a good choice for hobbyists. The Gainspan's GS1500M has features on par with more expensive WiFi modules, but since it's no longer in production, it's not suitable for prototypes intended for serial production. WiFi 5 click is priced accordingly.

The integrated firmware provides Wi-Fi and networking stack services (TCP/UDP/IP, HTTP, DNS, DHCP, SSL).

The following security protocols are supported: WEP, 802.11i WPA/WPA2 Personal Security (AES and TKIP), Enterprise Security (EAP-FAST, EAP-TLS, EAP-TTLS, PEAP).

Typical RF output power is 14dBm (802.11b), 12dBm (802.11n).

Note that GSM1500M is well suited for battery-powered applications due to its multiple power saving mode (standby, sleep, deep sleep)

Data rates of up to 921.6kbps can be achieved through the UART interface.

Programming

This snippet demonstrates WiFi5 click connecting to a local network (mikroe public) and fetches weather data from a web site.

```
void main()
{
     // initialize the UART for monitoring the program
     UART1_Init_Advanced( 9600,  _UART_8_BIT_DATA,
                                  _UART_NOPARITY,
                                 _UART_ONE_STOPBIT,
                                 &_GPIO_MODULE_USART1_PA9_10 );
     Delay_ms(300);
     UART1_Write_Text("Uart initialized\r\n");

     Delay_ms(5000);
     // initialize the UART for communication between the MCU and the WiFi 5 Click
     UART3_Init_Advanced( 9600, _UART_8_BIT_DATA,
                                _UART_NOPARITY,
                                _UART_ONE_STOPBIT,
                                &_GPIO_MODULE_USART3_PD89);

     Delay_ms(5000);


     UART1_Write_Text("Uarts ready\r\n");

     Delay_ms(1000);

     // set up the UART interrupt
     RXNEIE_USART3_CR1_bit = 1;
     NVIC_IntEnable( IVT_INT_USART3 );
     EnableInterrupts();
```

```
29
30      // clear the buffer and the flags, setting them ready for the program to start
31      clear_serial_buffer();
32      flags_false();
33      UART3_WRITE_TEXT("AT+WPAPSK=MikroE Public,mikroe.guest\r\n");  // compute the PSK from SSID and PassPhrase
34      while(response_finished == false);                            // wait for the "OK" response
35
36      UART1_WRITE_TEXT(serial_buffer);                              // print out the response
37
38      clear_serial_buffer();                                        // clear the buffer and flags
39      flags_false();
40      Delay_ms(300);
41      UART3_WRITE_TEXT("AT+WA=MikroE Public\r\n");                   // try to connect to MikroE Public network
42      while (response_finished == false);                           // wait for the "OK" response
43
44      UART1_WRITE_TEXT(serial_buffer);                              // Print out the response
45
46      clear_serial_buffer();                                        // clear the buffer and flags
47      flags_false();
48      UART3_WRITE_TEXT("at+httpopen=api.openweathermap.org\r\n");    // open the api.openweathermap.org web page
49      while (response_finished == false);                           // wait for the "OK" response
50
51      UART1_WRITE_TEXT(serial_buffer);                              // print out the buffer
52
53      clear_serial_buffer();                                        // clear the buffer and the flags
54      flags_false();
```

Code examples that demonstrate the usage of WiFi 5 click with MikroElektronika hardware, written for mikroC for FT90x and ARM are available on Libstock (http://libstock.mikroe.com/projects/view/1787/wifi-5-click).

Resources

- GS1500M product brief (https://s3.amazonaws.com/site_support/uploads/document_upload/GS1500M-PB.pdf)

- GainSpan product page (http://www.gainspan.com/products/gs1500m)docs

- Access the world wide web easily with WiFi 5 click (http://learn.mikroe.com/access-world-wide-web-easily-wifi-5-click/) – tutorial at learn.mikroe.com

- WiFi 5 click code examples on Libstock (http://libstock.mikroe.com/projects/view/1787/wifi-5-click)

- mikroBUS standard specifications (http://download.mikroe.com/documents/standards/mikrobus/mikrobus-standard-specification-v200.pdf)