WiFi4UAV (Waypoint Edition)

WiFi4UAV enables the user to take over control of microdrones md4-200 or md4-1000 with a Notebook or PC via WLAN.

The system is powered by an 1 GHz Cortex-A8 processor and supports dual band (2.4 and 5 GHz) Wireless LAN. While providing lots of computational ressources, energy consumption is still on a very low level at 1A on 5V and the dimensions are as tiny as 85x60x30mm, weighing only 90g.

Communication to and from the UAV is established using the microdrones SI^2 serial interface. This interface provides access to all telemetry data generated by the drone like current position, traveling speed, current attitude and many more. All these information is transmitted over WiFi to aPC.
The greatest benefit **WiFi4UAV** provides though, is the ability to control the UAV right from a PC. The basic version lets the user send a reference speed vector to move the UAV just like he would do with the two remote control sticks.

The "**WiFi4UAV Waypoint Edition**", as an option, takes customers a step forward and is able to transmit waypoints in WGS84 format to the UAV. Each waypoint is combined with an ap-proaching speed, an attitude and a height. This enables users to plan complex routes for the UAV to traverse. One may even continuously send new waypoints to the UAV to adapt the trajectory in real-time.

For PC applications TeAx Technology provides a C++ library precompiled for Microsoft Windows and Linux which can be easily included in any existing software project. A graphical user interface to control one, or more UAVs can also be provided.
Setup of the module is easily done via a RS232 interface. Using the provided USB adapter all necessary configurations are comfortably made by a command line interface from a PC.

Optional usecases:

Due to the high processing power a lot more areas of interest are possible:

- Using the device as a camera interface to toggle image acquisition and save position information alongside
- Transfer images directly after recording to the ground
- Extend the working radius by integration of GSM/UMTS/LTE, or radio communication

Summary:

- Control md4-200 or md4-1000 with your PC
- Real-time transmission of downlink telemetry data (position, speed, etc.)
- Send reference speeds to the drone for control
- Send waypoints to the drone (only WiFi4UAV Waypoint Edition)
- Integrate functionality into existing software projects
- Easy configuration

Specifications:

UAV Interface:	microdrones SI²
Configuration Interface:	RS232, 38400 8,n,1, easy to use command line interface
WLAN Standards:	IEEE 802.11n Draft 2, IEEE 802.11a, IEEE 802.11g, IEEE 802.11b
WLAN Modes:	Infrastructure and Ad-Hoc
Frequency:	2.412 – 2.462GHz and 5.15 – 5.25GHz
Security:	WPA2-PSK (TKIP/AES), WPA-PSK (TKIP/AES), WEP128, WEP64
Transmitted Power:	< 16dBm (typical)
Range:	Up to 400m
Processor:	Freescale Cortex-A8, 1GHz
RAM:	512 Mbyte
Power:	5V 1A (from microdrones servo port)
Weight:	90g
Dimensions:	85x60x30mm

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