

ENDRICH COMPONENTS LINK DEVELOPMENT ENVIRONMENTS FOR IOT SOLUTIONS



Following the principle: we not only talk about solutions, we help our customers to make it happen, an IoT application board was set up by FAE's / product managers of Endrich Bauelemente GmbH at the trade fair Electronica 2016.

The task was to transmit a sensor signal to an internal WiFi network and to trigger a silent alarm. Further more send the alarm message to the WorldWideWeb and generate an email on a free account. This message can be displayed on smartphone or Tablet PC, which is not in the vicinity of the panel.

In this application example, serial data, of an **industrial controller, SmartHome, alarm system, lightning control** and other application areas are used, and transmitted via an internal and external wireless network.

Different development environments have been used to realize the demonstration:

1. External network:

As alarm generator the development environment of the GridEye sensor from manufacturer Panasonic, is used. This consists of a 64 temperature sensors, 8*8 thermopile elements, and thus outputs a 64 bit matrix.

The data is transferred to the WiFigurator, the software kit of the Panasonic WiFi module PAN9320, via the USB interface of the sensor board.

This development board embedding the Wifi module PAN9320, acts as a server and recognise the alarm message. The module works as a client in an existing WiFi topology, which is connected to the internet. Via its router, an email with the alarm message is sent to a WEB address, and can be read by a dedicated Tablet PC or smartphone.

2. Internal network:

In parallel, the development environment, in the case an access point, sends the alarm message via a WiFi tunnel to a second development environment consisting of the same hardware. This sends the signal via the UART to a 32 bit μ Controller. In our case the HT32F1765 of the manufacturer Holtek.

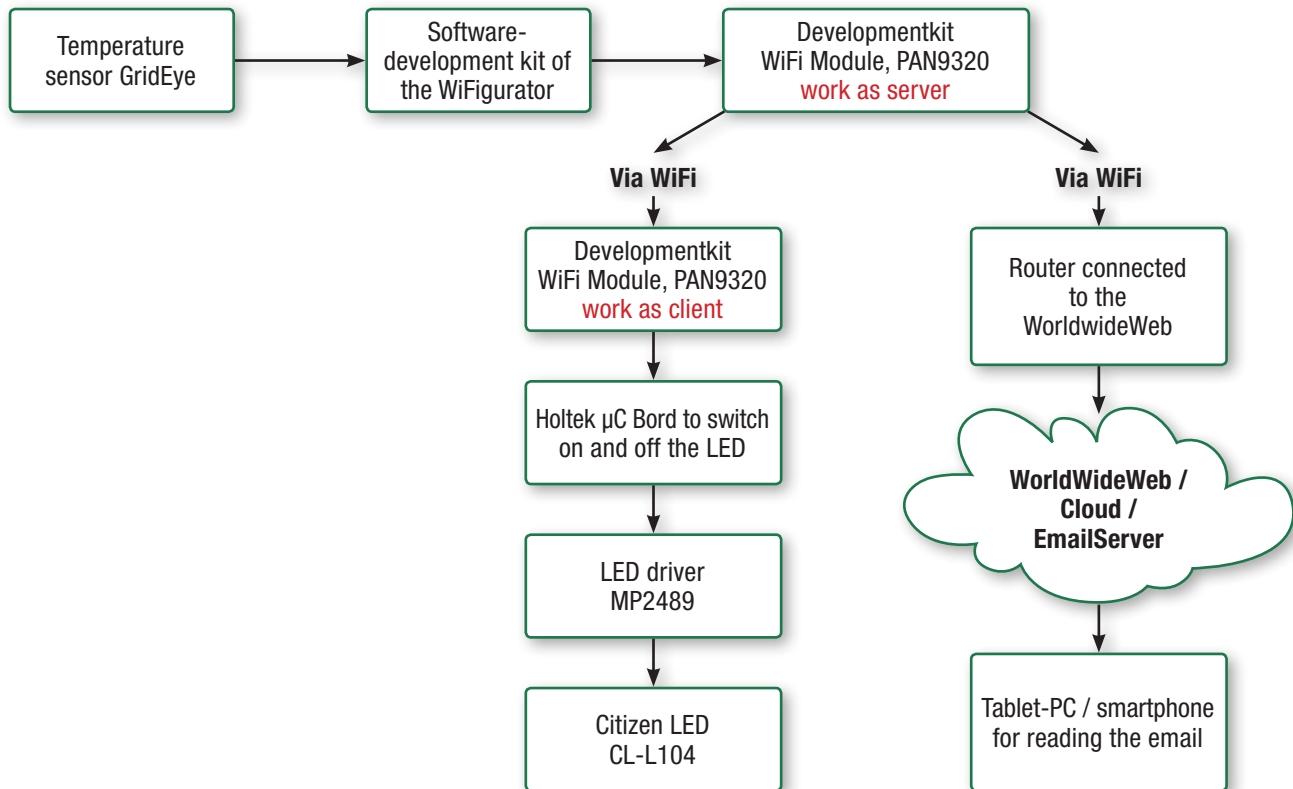
After the UART signal is received, the μ Controller switches a GPIO, which responds to a LED driver, MP2489 from our partner Monolithic Power Systems.

This drives the Citizen LED CL-L104, which illuminates the panel brightly by a light output of 100 lumen with a power consumption of 3 watt.

The second development environment of the GridEye sensor provides the data to the development software of the kit, which is based on a Windows-based computer and show the infrared image on a monitor. It's a 17.0 inch display with a capacitive touch sensor of the manufacturer Ampire.

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Blockdiagram



Used products of the application, which are available at Endrich Bauelemente GmbH:

- **PAN9320 / WiFi Modul, Panasonic**

Standards: IEEE802.11 b,g,n
TCP/IP and Accesspoint, 1 MB Flash
for customer Application
and WebServer on Bord

- **Grid Eye Sensor, Panasonic**

with Bluetooth4.1 Smart Module PAN1740,
Sensor:
Digital Output, I²C / Interrupt Signal output
64 Thermopile Elements, 8 bit to 8 bit

- **µC, HT32F1765, Holtek**

Up to 128 k x 8 Flash and 64 k x 8 SRAM are integrated
Powersupply 2,7 V up to 3,6 V possible
System Clock: up to 72 MHz

- **LED Treiber, MP2489, Monolithic Power Systems**

Internal 65 V MOSFET
Wide 6 V to 60 V Input Range
≥1 A Output Current
High Efficiency (>95%)

- **LED, Citizen**

White power LED for general lighting.
General Color Rendering Index Typ. 85 type.
6 Watt package
Correlated Color Temperature 3000 K

- **Monitor / Display, Ampire**

17,0 Zoll Diagonale
1280 x 1024 dots, 850 cd/m²
capacitive Touchsensor