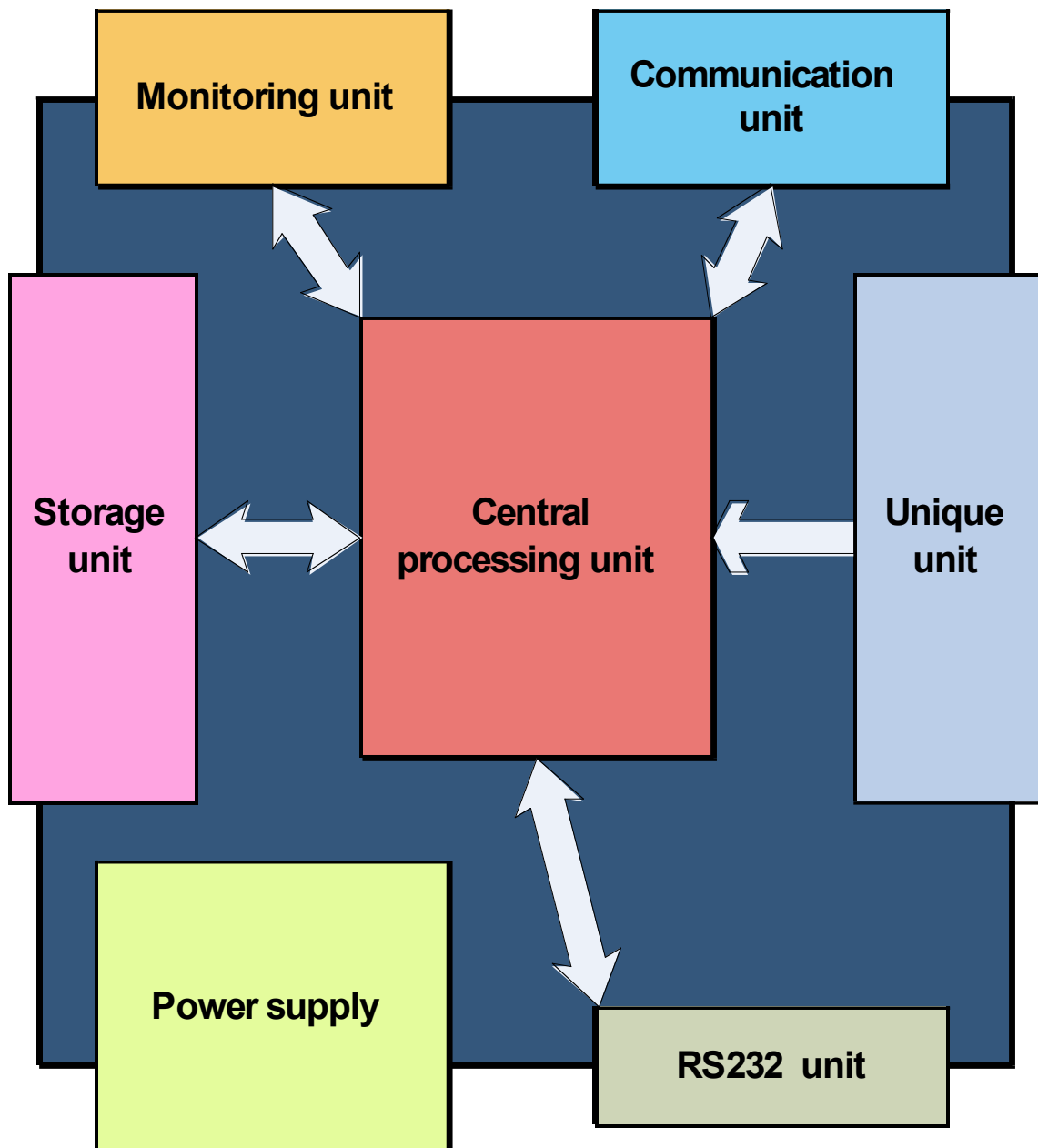


## Wireless monitoring device

### Goal

Wireless monitoring device monitors existing wireless network using independent network to report status.

### Logical parts



## **1. Monitoring unit**

This unit monitors wireless network according requests sent from central processing unit and returns information (responses from monitored wireless network) back to central processing unit.

Requests from central processing unit include scanning, testing, probing of wireless network and measuring wireless signal strength.

## **2. Central processing unit**

This unit:

- sends requests to monitoring unit
- controls communication (via communication unit)
- controls RS232 unit
- uses storage unit for storing scripts and data
- uses information from unique unit
- executes scripts written in a common programming language

## **3. Communication unit**

This unit is responsible for communication with central monitoring system (in a defined type of network).

## **4. Storage unit**

This unit stores scripts and data provided by central processing unit.

## **5. Power supply unit**

This unit provides power.

## **6. RS232 unit**

This unit provides communication channel using RS232.

## **7. Unique unit**

This unit provides unique code sequence for device.

## **Usage**

Wireless monitoring device may be used for permanent or ad-hoc monitoring and scanning of wireless network with minimum on sight administration. Unit may use independent network to communicate with administration point.

## **Use case: eduroam**

Wireless monitoring device able to monitor eduroam wireless network must meet the following specification:

### **1. Monitoring unit**

- able to scan network for SSID eduroam
- able to issue EAP-TTLS request (other EAP type ? )
- able to measure wireless signal strength

### **2. Central processing unit**

- able to interpret Python or JAVA scripts/programs

### **3. Communication unit**

- sensornet
- networking over power supply line
- wired network
- any other ?
- optical LED signalization may be sufficient (?)

### **4. Storage unit**

- RAM
- EPROM/NVRAM
- SD card slots (up to 4 GB) or USB

### **5. Power supply unit**

- use 110-240 V 50/60 Hz
- backup lithium-ion rechargeable battery (up to 1-2 hour)

### **7. Unique unit**

- unique device number (like MAC) hard coded
- may have GPS receiver

Expected final market price less than **100 €** .

## ***Research and development***

Research and development may go in two ways.

### **Using existing devices**

On the market, there is a lot of low cost devices which have ability to be programmed and need some small improvement to be compliant with the specification. (www.openwrt.org).

### **Research and develop new device**

On the market, there is a lot of electronic modules which perform some part of the specification. This solution needs more money for research, development and programming, but may end with small, compact and very efficient device, at low cost.

(e.g. combining module EW-XG-880M

[http://www.embeddedworks.net/wlan/oem\\_cf\\_80211g.html](http://www.embeddedworks.net/wlan/oem_cf_80211g.html)

and module GE863

[http://www.telit.com/en/products/gsm-gprs.php?p\\_id=12&p\\_ac=show&p=8](http://www.telit.com/en/products/gsm-gprs.php?p_id=12&p_ac=show&p=8) )