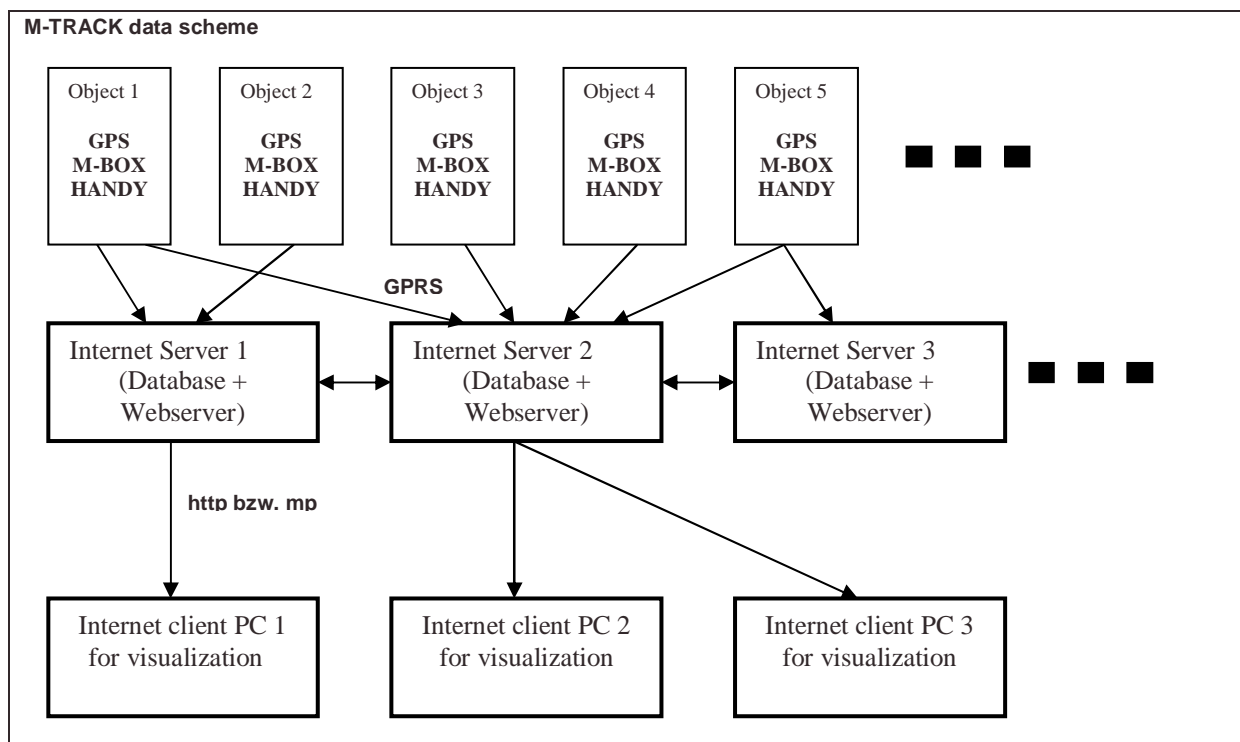


## M-TRACK System MASK-IT

### Short description:

The M-TRACK system serves the fast and cheap transmission of position and transaction data via the Internet. Thereby the online pursuit of objects becomes possible, e.g. tracking of cyclists, courier vehicles and so on.

The acquired item data like latitude/longitude, current speed and direction of motion is send into the Internet using the new and economic GPRS (general pack radio service) technology where the data is stored, processed and forwarded. From there the data can be accessed e.g. as historical tracking routes on standard PC workstations via Internet Browser or special software.



### The development targets:

The development targets of the M-TRACK of system are:

- Small initial and operational costs compared to sms (short message system) based systems
- Portability and flexibility
- Fast transmission and availability of tracking data
- Reliability due to redundant transmission ways.

## The system in detail:

The hardware of the system consists of four individual components:

### 1. M-Box

The m-box contains a micro controller for the collection and forwarding of GPS (global Positioning system) data. The data is picked out as a serial data stream from a standard GPS mouse via RS232 interface and is prepared for internet transmission in the m-box. The data can be buffered for later transmission or can be send directly using a GPRS handy. Object data is only sent, while the object is changing position. Due to the GPRS technology a permanent "stay on-line" without resulting costs is possible. This results in minimal operating costs with maximum availability.

### 2. GPS receiver

Tracking is done by a standard GPS-mouse. The receiver processes the data of up to 12 satellites and allows a position acquisition within second range. Furthermore the current speed and direction of motion are available. Those are put together with date and timestamp in the m-box and being sent into the Internet.

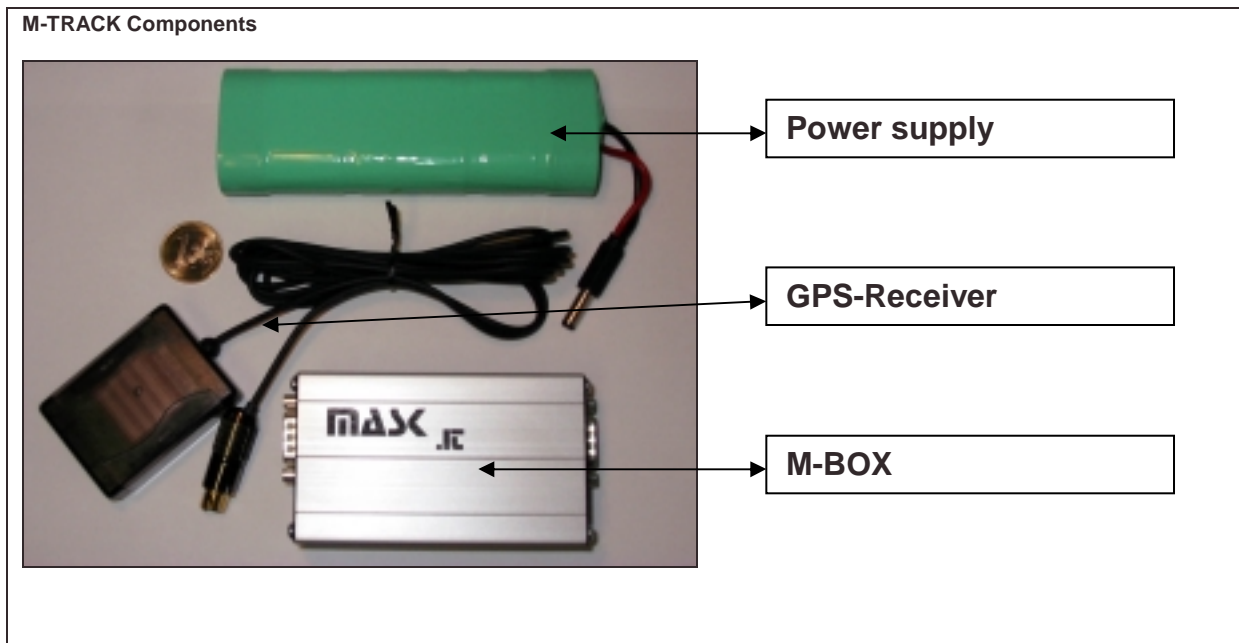
### 3. GPRS Handy


The data transmission of the m-box is done using a GPRS connection into the Internet. Advantages of this package-oriented technology are the high data rates and the amount based transferprices.

Alternatively also GSM adapters as well as standard modems can be used.

### 4. Power supply

The power supply depends on the kind of application. This can be an accumulator, transformator or the vehicles electrical system.





All further system components consist of software modules for data collection on Internet servers and for visualization on standard PC Workstations via Internetexplorer or specific auxiliary software.

### **Usage possibilities**

M-TRACK is conceived to be a low cost solution for the tracking of mobile objects. Main application is the usage in smaller transport enterprises e.g. auto or bicycle courier services.

Due to the compact and portable organization, M-TRACK is also suitable for real time on sport events.

### **Application type**

M-TRACK is conceived for the economical detection of mobile objects. Here the employment is in smaller transport enterprises e.g. auto or bicycle courier services. Above all the time and route optimization are the center of attention by short response times of the planning manager. By the compact and portable organization M-TRACK is suitable also for real time route pursuit on sport events.

Item data can be made accessible for a set of prospective customers over the InterNet in real time, whereby the Web offers of sport organizers win substantially at attractiveness. With larger competitions a visualization of the meeting process on video canvases is possible in the starting/target area. Thus the considerable running times can be bridged. With m-TRACKS the current position can be faded in by TV-Cars in the television picture, whereby the spectator recognizes the relationship of current distance position and camera picture and optimally is informed.

### **Pilot project M-TRACK with 21. Frankfurt Marathon**

To 27.10.2002 21 became in the context. Frankfurt Marathons the system M-TRACK for the first time the public presents. The systems were carried in small backpacks by two cyclists. Item data of the prominent men and women were transmitted on-line into the VIP Lounge of the Merriot hotel. Here the distance process and the current position of the respective groups of runners were projected on a canvas. In this way the spectators had an optimal overview of the run happening at each time.

M-TRACK Anwendung Eurocity-Marathon Frankfurt



Projizierter Streckenverlauf mit Positionen der Spitzengruppen (VIP-Lounge Merriot Hotel)



Die Begleiter der Spitzengruppen mit M-TRACK Tragesystemen nach dem Zieleinlauf

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