Background Report

November 2006

Locating people in emergency situations via satellite: SOS mobile phones

Many people always carry their mobile with them, so that in case of an emergency they are able to call help. But what if someone has an accident and cannot tell the ambulance controller where exactly the incident happened?

According to the Björn Steiger Foundation this is actually the case for over half of the four million emergency calls made per year to German ambulance services. Thanks to latest technology, people in emergency situations can now be located - and in many cases this can help save their lives.

Radio cells make up the mobile phone network

“Especially in rural areas people use their mobiles to make an emergency call, since often there is nobody around who could help. Thanks to the latest equipment in our control centre, we can now also locate the people calling who can’t tell us where they are,“ says Dieter Fecker, Head of the German Red Cross rescue service in Zollernalb.

Using GSM (Global System for Mobile Communications), introduced by the Björn Steiger Stiftung Service GmbH, the control centre employees can now determine the standard digital transmission for mobile phone systems, or the radio cell from which the SOS-call 112 was made. Fecker explains: “We can determine the position of the caller with a deviation of up to one kilometre. Although we do not get the exact positioning, this method normally allows us to find the caller quite quickly.“

Precise positioning via satellite

Since this year it has been possible to locate the position of a person more exactly, if he or she is using a GPS mobile phone to make an SOS-call. For the positioning via satellite, the deviation is only up to 20 metres and thus allows the emergency services to quickly and easily find the missed person. Problems might occur in exceptional cases, if the view of the sky is very limited, in a street canyon or in a building.

For the ambulance men to be able to track your position via GPS, the following requirements must be met:

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SOS-call via a GPS mobile phone after a bike accident

1. Mobile phone with a GPS receiver

Firstly, your mobile phone must be equipped with a GPS receiver and transmitter, for transmitting the positioning data. For most models this has not become a standard feature yet. A mobile phone can also be upgraded with a navigation solution that provides these functions, for instance the Falk activepilot. This technology is already integrated in the Secufone mobile phone that is easy to use, has a special alarm button and aims especially at elderly or disabled people and children or outdoor athletes.

2. Registering at LifeService

Secondly, mobile phone callers must personally register their GPS mobile at the LifeService of the Björn Steiger Foundation, by calling the toll-free 24-hour hotline at 0800 1011599. Their mobile phone data is then saved to a database, so that in case of an emergency GPS tracking is possible. “This registration is required, since to be able to start a search the specific mobile interface must be known,” explains Melanie Storch, spokesperson of the Björn Steiger Stiftung Service GmbH. It is important that registration has taken place, before GPS tracking is required in case of an emergency. A search can only be started, if the data has been saved before. So: The best is to call the hotline immediately after you have bought your new mobile!

According to Storch, in the first two months about 400 people have registered toll-free at LifeService.

3. GPS plus GSM tracking for verification

Thirdly, the control centres must be equipped with a system for tracking mobile phones. “After an emergency call, the software converts the GPS coordinates of the mobile phone into an address and displays the position of the caller on a map. Then the system searches for the nearest emergency services and outputs all the information,“ explains Thilo Schmalkoke, Sales Manager at PTV AG. The software company developed the technology this new tracking process is based on. For verification of the GPS coordinates, conventional GSM tracking is also performed.

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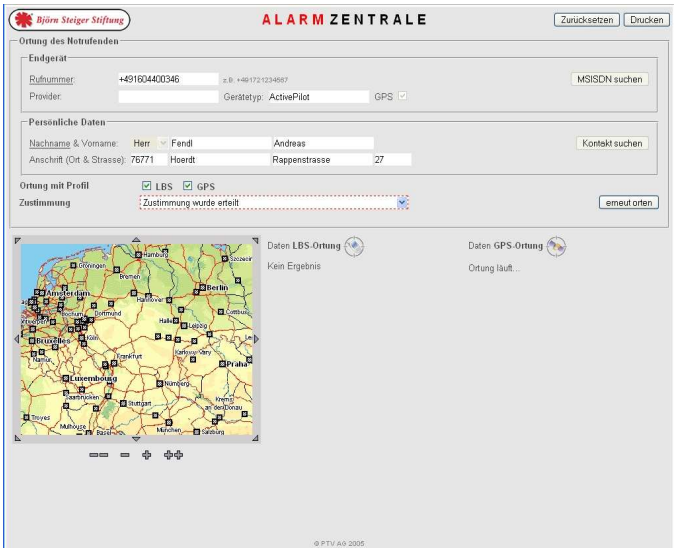
The Björn Steiger Foundation wanted a co-operation with PTV because they were convinced that a software company capable of developing technologies for tracking fleets would also be able to implement a solution for tracking people in emergency cases.

GPS tracking thus already works throughout the whole of Germany and introduction of the system into other countries, such as Austria or Switzerland are also planned.



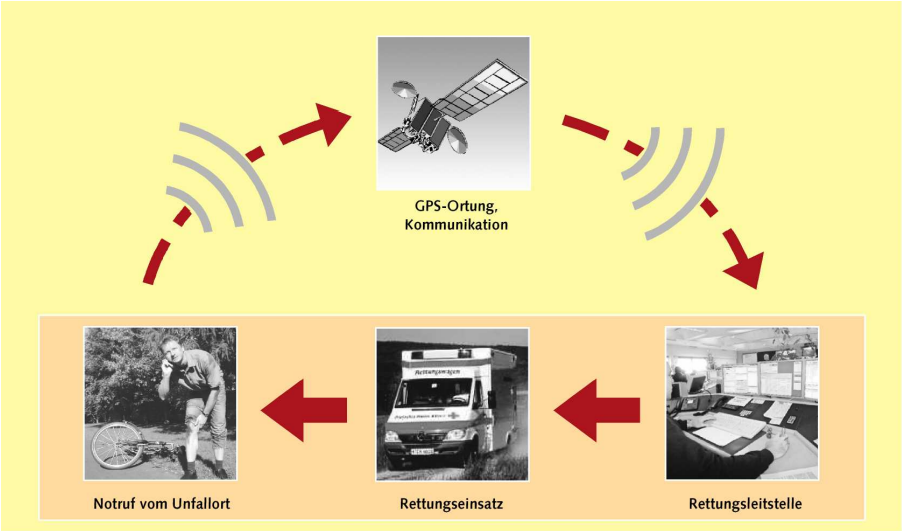
The tracking software developed by PTV displays the location of the accident on a map.

State-of-the art security measures

According to the German telecommunication law § 98 and § 108, network providers are obliged to transmit position data for emergency calls to the control centres. According to this law, callers must also give their prior consent for being tracked. In addition, according to Germany's Federal Officer for Data Protection and Freedom of Information an agreement is urgently required that settles the purpose, duration and possibility of data transfer to third parties.

Data protection for users of the system is provided by the so-called two-factor-authentification solution. Apart from entering their name and password, control centre employees can only start a tracking process by using a one-time generated password obtained through a Kobil smart token. These data protection measures meet the present security standards. "In addition, the emergency call is documented with the caller's permission. Only after the caller has given his OK, are we allowed to track him with the aid of the system," explains Fecker. An exception are situations in which it is a matter of life or death and the caller is no longer capable of giving his permission: In this case, the decision is left to the control centre employee's discretion.

For the ambulance to be able to immediately find and help the caller, the latter must have his mobile switched on and with him. Fecker speaks very positively of the new possibilities: "The advanced system has made work at the EMS easier and more efficient. The technology helps us to be even better at our most important task: saving lives."



So funktioniert die Handy-Ortung

Example of mobile phone tracking

For more information about mobile phone tracking, click the following links:

- http://www.english.ptv.de/cgi-bin/news/presse.pl?init=show&art=0906steiger
- http://www.steiger-stiftung.de/
- http://www.activepilot.de/falk/
- http://www.bfdi.bund.de/
- http://www.telecareplus.com/