

# Road Access Priority Information Device (RAPID)

Time plays a significant role when it comes to life-threatening situations. For this, emergency vehicles appreciate and rely on prerogative road access including priority lanes or authorization for red-light crossing. However, emergency services often are unnecessarily delayed by other road users blocking the road. Oftentimes they are not aware of an emergency vehicle approaching as they are distracted by music in their cars. High cost may be the consequence (e.g. in case of fires), but most importantly lives are at stake.

Our Road Access Priority Information Device (RAPID) allows the rescue vehicles to interrupt car audio services (FM, DAB+) and alert road users of the imminent emergency car by replacing the existing radio program by a pre-recorded or live audio information message or an alarm signal. Also, an information message is displayed on the car radio.



## TIME MATTERS!

Traffic delays of as little as three minutes can halve the chances of a patient's survivability. [2]

### The facts: in emergency situations time matters

Survivability in life-threatening situations is directly linked to the response time of emergency services [1]. In the case of cardiac arrest, traffic delays of as little as three minutes can halve the chances of a patient's survivability [2].

Apart from potentially saving lives, delays in response time are a significant cost factor [3], especially when delaying fire brigades. Recent studies even show that emergency response time has increased over the past years [4] for several reasons, including higher traffic volume.

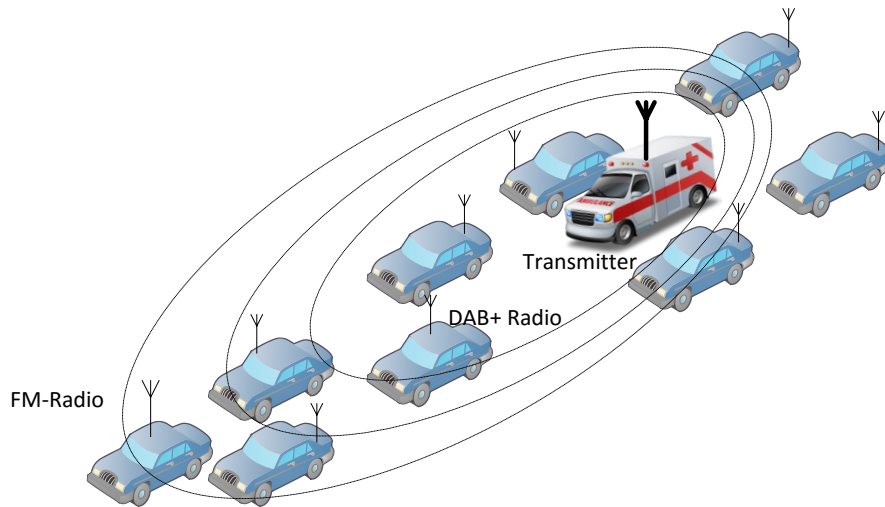
Modern cars are very comfortable and are well insulated against outside noise. They are even so well insulated that in an emergency situation and coupled with listening to music, the drivers hardly hear the sirens of rescue vehicles. This can lead to drastic situations and might even delay the emergency team until it is too late.

### References:

- [1] Wilde ET, (2013), Do Emergency Medical System Response Times Matter for Health Outcomes? Health Econ., 22, 790–806. doi:10.1002/hec.2851
- [2] Fridman M, Barnes V, Whyman A, Currell A, Bernard S, Walker T, Smith KL, (2007), A model of survival following pre-hospital cardiac arrest based on the Victorian Ambulance Cardiac Arrest Register, Resuscitation, 75, 2, 311-322
- [3] Mattsson B, Juås B, (1997), The importance of the time factor in fire and rescue service operations in Sweden, Accident Analysis & Prevention, 29/6, 849-857. doi:10.1016/S0001-4575(97)00054-7
- [4] Nehme Z, Andrew E, Smith K, (2016), Factors Influencing the Timeliness of Emergency Medical Service Response to Time Critical Emergencies, Prehospital Emergency Care, 20/6, 783-791. doi:10.3109/10903127.2016.1164776

We support you in saving lives and infrastructure!

## System conception



An emergency vehicle is equipped with our FM/DAB+ voice break in hardware and a (directional) transmit antenna. When needed, the driver can inform cars in close vicinity of its need to pass or that it is approaching, asking road users to free driving lanes and form a rescue lane (highways). Alternatively, a repeating message can constantly be played out. Modern radios can also display information messages on screen, which will be used by our system to show alert messages.

How it works: Locally, the FM and DAB+ signal is replaced by a stronger signal (jamming) carrying an audio voice message informing road users of the approaching rescue car. This message can be live or pre-recorded playback. The transmitted signal strength is adapted to the speed of the traffic with the help of an integrated GPS module.

It is assumed that 2/3 of vehicles can be reached by this system, the remaining 1/3 can be expected to behave according to classical swarm behaviour of large masses. Typically, a road user needs 15 seconds to realize an emergency vehicle wants to pass, signal strength is set accordingly.

Often, traffic jams arise by accident voyeurs on the opposing lanes. The system could also be used to inform road users locally of what is happening, reducing the intrinsic need of people on peeping the opposite street lane, leading to a reduction of traffic jam by accident voyeurs.

## Alternatives on the market

### Notable Market Players:

- EVAM System, Sweden  
Startup, V2V based on FM RDS Signalling.  
Can not do DAB+.  
<http://www.evamsystem.com/>
- HAAS Alert, USA  
Startup. Complete V2V system to be integrated into cars (e.g. Ford, Jaguar).  
Big alternative, however needs integration in all cars.  
<https://www.haasalert.com/>
- Transmax, Australia  
Complete street control system, high infrastructural demand.  
<https://www.transmax.com.au/>

