

An innovative system for prioritizing urban buses and emergency vehicles

February 4 2016, by Peter Rosenberger



Reinhard Schopf, head of the Transport and Urban Services department of the South-German city of Böblingen, speaks about the huge efficiency benefits and the unusual story behind Sitraffic Stream, an innovative system for prioritizing urban buses and emergency vehicles.

Mr. Schopf, the usual procedure is for a system provider to come to you and present the newest product - then you decide if you want to buy it or not. With Sitraffic Stream, things were a little different ...

That's true. In this case, the basic idea for Sitraffic Stream was developed here in our department in Böblingen. Then we started looking for the right partner to turn the idea into a perfect product. And Siemens proved to be exactly the right choice: The brilliant people working there understood immediately what our idea was about.

Which is...?

Back then, we had been thinking for some time about realizing a bus prioritization system together with our neighbor, the city of Sindelfingen. At first, the obvious solution seemed to be a conventional radio beacon system. However, with the increasing precision of satellite navigation and the constantly improving transmission performance of radio systems, an idea started to crystallize: Why not equip the buses with on-board units for GPS positioning and have them communicate via GPRS with our existing central traffic computer rather than with the individual traffic lights? This would save us the trouble and costs of retrofitting the traffic lights, installing expensive street-side hardware and miles of cabling or additional antennae for communication purposes.

The product that came out of this project is called Sitraffic Stream and looks to be much less expensive to implement than alternative solutions?

Absolutely. Eight years ago, we calculated the costs for a radio beacon solution and came up with a total investment volume of roughly € 1.7 million. With just € 400,000, the costs for implementing Sitraffic Stream are not even a fourth of that – while the scope of the project has actually increased. This means that we will now include more intersections and urban buses in the system than originally planned. The € 200,000 subsidy that we received for the implementation of Sitraffic Stream in the scope of the "NAMOREG" Program for Sustainable

Mobility in the Stuttgart Region was of course a welcome additional acknowledgement of the validity of our concept.

And with Sitraffic Stream, you don't lose any of the performance you would have had with the conventional solution?

Quite the contrary: Sitraffic Stream offers many of the functions provided by conventional prioritization systems, plus a lot more. A decisive advantage is the very short duration of the interventions. As a rule, there are only about 30 seconds between the dynamic sign-on of the prioritized vehicles and their individual sign-off in the middle of the intersection. Thus the impact on private travel is minimal, which is an important factor for a prioritization system's quality, especially in peak traffic. Moreover, Sitraffic Stream offers exceptional flexibility in the case that streets are temporarily blocked or closed due to roadworks or major outdoor events: You simply use an ordinary internet browser to relocate the sign-on and sign-off points - and voilà your diversion route.

Once completed, the system in Böblingen will cover 30 to 40 intersections, the complete fleet of 75 urban buses as well as five fire-fighting trucks. Before the rollout across the entire city, did you carry out a small-scale test of the system's functions?

Yes, we did. In the second half of 2012, there was a pilot project involving four intersections, ten buses and two fire-fighting vehicles. The main objective of this pilot was to further optimize transmission time for the green-light request telegrams, verify the stability and reliability of the system's operation, and identify the most efficient solutions for a line detection function and the integration with bus stop

management.

Is everything working perfectly now?

Well, a few minor things still need a little tweaking, but those are mainly to do with traffic control aspects and not with the system per se. We are extremely pleased with the performance of Sitraffic Stream – as are all other stakeholders. If the bus drivers tell you that everything is working as it should, you can be sure that they know what they are talking about. And the fire brigade drivers, too, are full of praise for the solution because now driving to an emergency has become much safer.

Not to forget that the project earned a variety of innovation awards ...

That's right. After obtaining the Best Practice Award for Municipal Telematics Applications of the European TelematicsPRO association, the project was also among the winners of the "Landmarks in the Land of Ideas" competition. The series of successes continued in 2015 with the Public Transport Innovation Prize of the Federal State of Baden-Württemberg – a recognition that makes our municipality especially proud since it is normally reserved for bus operators.

The resulting media coverage has doubtlessly generated a lot of attention. Do you regularly receive inquiries from municipalities who are looking for first-hand information about the system?

In the beginning, our colleagues from other cities were rather skeptical when we told them about our plans. But at some point of time, this changed radically. Today there is a lot of interest in the system, and

other municipalities contact us with questions, which we are always happy to answer, of course. Actually, the fire brigade prioritization function of Sitraffic Stream has by now been implemented in a number of other municipalities, too, for instance in Heilbronn, Bietigheim and Speyer. By the way, I am convinced that the system would be a highly favorable solution also for big cities, because the resulting shorter response times make it possible to consider a reduction in the number of fire stations.

Don't you think that other types of emergency vehicles such as ambulances would also benefit from being given priority via Sitraffic Stream?

For sure. Some time ago, we were approached in this matter by the emergency medical service of the German Red Cross in the Böblingen district. Their new rescue coordination center has been built at a location with a signalized intersection very close by. Obviously a classical use case for Sitraffic Stream. For this purpose, the Siemens experts have already developed a software solution that allows integrating Sitraffic Stream functionality in the on-board electronic systems of the emergency vehicles. The first tests have been completed, with excellent results.

Are there estimates as to the amount of time by which the use of Sitraffic Stream will shorten the response times?

In the scope of a cooperative SmartCity project, we plan to have the computer scientists at the Herman Hollerith Center here in Böblingen help us investigate scientifically if and to what extent Sitraffic Stream is able to reduce the emergency services' [response times](#). I hope that the

innovative Sitraffic-Stream concept will then be deployed successfully also for the emergency services, making our city an even better place to live.

Provided by Siemens

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