3.3 Mobile information on weather and road conditions – a user study

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The study was designed to investigate driver needs for information services provided by mobile phone. The Finnish Road Enterprise and Sonera developed the service at the test site on Road 1 between Helsinki and Turku. In the pilot, text messages on weather and road conditions were provided to users upon request. The service replied to the request with a text message indicating whether the road condition was normal, poor or very poor on the relevant road section. The user of the service was localised based on the GSM message, and local information was provided based on decoded data from road weather stations. The aim of these types of services, which utilise the databases of the Finnish Road Enterprise and its partners in co-operation, is to provide high quality and timely information and contribute to improved traffic safety, mobility and comfort. Earlier research in Finland shows that drivers accept road and weather information services and appreciate the information they give. However, this is the first time a service localising the user was piloted.

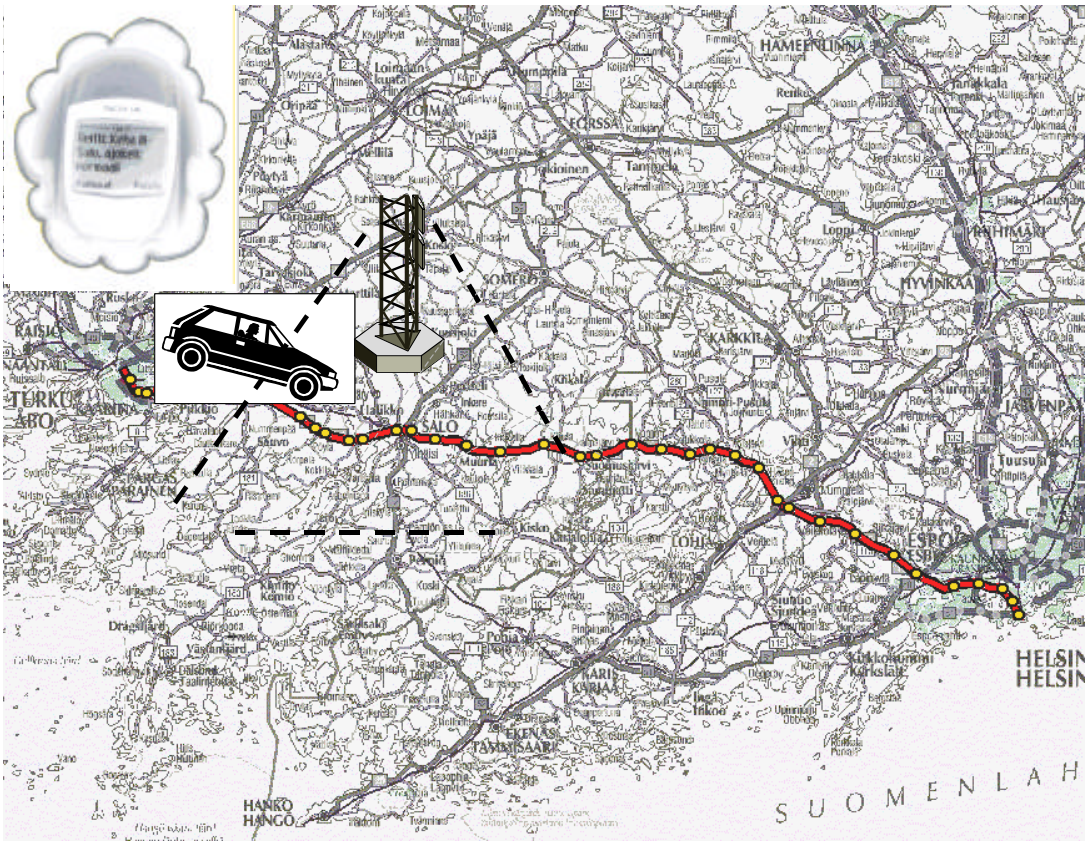

Figure 25. The service was localised based on the GSM message, and local information was provided by the mobile phone.

The system was tested over 1 month in April 2001. The data was collected by phone interviews at the beginning of May. In total, 13 subjects participated in the study. All the subjects were licenced male drivers who volunteered for the study and gave their permission for their mobile phones to be localised. However, the final data included 10 subjects only, as three subjects were excluded due to technical problems resulting in insufficient data. The mean age of the subjects was 39. The distance they had driven during the last 12 months varied from 3,000 km to 70,000 km. All subjects had owned a mobile phone for over 4 years. They used the Internet at least once a week, and six used the Internet on a daily basis.

During the test month, the subjects used the service between 2 and 50 times. Those who used the system most frequently partly made test calls to check that the system functioned technically. The service was used both before and during travel.

The users were requested to evaluate the service and the human-machine interface. In general, they were quite satisfied with various aspects of the information provided. They were most satisfied with the text message search and the speed of information retrieval. In general, the users were also satisfied with the comprehensibility of the messages and the reliability and usefulness of the information. The structure of the information and the presentation order of items were criticised the most. The subjects were also asked to estimate how many times the messages had affected their behaviour. Because of the short period and partly good weather, most of the subjects did not report behavioural effects. Notably, however, in some cases the weather and road condition information retrieved by mobile phone was reported to affect the time set aside for their journey, or even the mode of travel or decision to cancel the trip. In addition, the users indicated improved comfort and driver behaviour. However, in this limited pilot the users had few opportunities to test the service in real circumstances.

Subjects assessed how much they would be willing to pay to purchase a mobile service providing real-time weather and road condition information. The indicated purchase price ranged from 0 to 12.6 euros per month or 1.7 euros per search, with corresponding means of 3 euros/month and 0.6 euros/search. The majority of users said they would prefer monthly payments over payments for search.

Finally, users were asked how they thought the service could be improved, and requested to suggest ideas for information contents in mobile services. Firstly, all subjects preferred a push service to a pull one. Secondly, several ideas concerning weather messages were presented: warning messages, consistent messages, weather and road temperatures, information on the effects of weather on travelling time, automatic messages, real-time information, wider coverage area, voice messages, greater content, a range from general to detailed information, etc. Thirdly, other information contents for a mobile service were suggested: incident information, traffic situation, route guidance, gas stations, gas price, rest areas, cafeterias, maintenance actions, road numbers, forecast for the next day, road condition at the destination, etc.

The main implication of this limited user study is that a weather and road condition information service using mobile phones and text messages is a promising approach. The pilot users seemed to appreciate many aspects of this sort of system and found that it offered many advantages. The service was assessed to be useful. In addition, pilot users put forward several suggestions on how to develop the service further.