SECUR-ED
SECured URban transportation - European Demonstration

D35.5 Telecommunications

PUBLIC SUMMARY ONLY (PS)

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1 Public Summary

The title of this Deliverable has been updated to “Telecommunications” from “Adapted Encoder Technologies” for a more appropriate titling that indicates the (more extensive) scope of subjects being covered as part of this Deliverable.

The security needs and challenges of Urban Public Transportation are clearly impacted by the evolution in technology. Telecommunications, as the means of communication between technologies and also as the enabler for many security applications, has become a subject matter of critical importance for PTOs.

In conjunction with this Deliverable, a Telecommunications expert Work Group (Telecom WG) was formed, combining all subject matter experts from SECUR-ED and PROTECTRAIL projects; including PTOs, industry suppliers, and manufacturers. The workshops, discussions, and reviews out of the Telecom WG have contributed to this Deliverable.

Given how extensive Telecommunications is as a topic, it is not the intent of this document (or the deliverable itself) to attempt covering all encompassing topics of Telecommunications and its security applications. D35.5 followed the lead of the Telecom WG in capturing the key topics and activities that the forum believes would serve greatest value to the PTO community coming out of the SECUR-ED framework. As a result, the content of D35.5 is written with the intent that the primary audience will be users in the PTO community that are seeking mid-high level overview and understanding of key Telecom technologies. Moreover, it aims to provide users with valuable perspectives and considerations that are more prominent for PTOs when integrating Telecom Technologies under the Public Transportation environment for security applications.

Amongst the PTOs of SECUR-ED and PROTECTRAIL projects, the challenge that the PTOs expressed greatest interest in for security enhancement was in setting up a communication link that would enable their transfer for voice, video, and data between vehicles and ground/wayside. Having the communication link would open up the possibility for PTOs to use many valuable security applications and features that otherwise would not be possible.

In addition to all the research and inputs on telecommunication technologies, out of D35.5, a prototype was derived combining COTS products to experiment and to demonstrate to PTOs the feasibility of setting up a Mobile Communication Gateway that could be used on legacy vehicles to enable communication between vehicles and ground/wayside. Besides testing the use of WI-FI, 3G, and 4G/LTE networks independently; a further feature was derived to test the use a combination of these networks to increase network resilience. The setup and results of these tests are also included as part of this document. It was made clear out of the Telecom WG that Telecommunications continually evolves towards Ethernet networks. Further, PTOs are gaining interest in establishing broadband networks that could either be dedicated to security or even shared between security and infotainment applications. The Mobile Communication Gateway derived out of this deliverable demonstrates how a network could be established to serve such security applications.

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