SHORT TERM SCIENTIFIC MISSION (STSM)
SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA15127
STSM title: Application of Quality of Delivery in modular wireless positioning system in a face of weather-induced disruption delivery
STSM start and end date: 14/04/2019 to 18/04/2019
Grantee name: Dr. Juraj Machaj

PURPOSE OF THE STSM:

The main aim of the STSM was to discuss and improve the actual content of the chapter as well as agree upon the next steps and some approaches to be described in the chapter on a face-to-face basis. Besides the coordination issues, this STSM was supposed to bring a new scientific knowledge in the context of ensuring Quality of Service in localization systems based on RSS fingerprinting. In particular, I was supposed to work together with the colleagues from the KTU and TU Graz on evaluation of impact of bad weather conditions on performance of localization systems. Moreover, possible steps required to improve performance of localization system disrupted by environment conditions were also supposed to be investigated.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

The STSM was implemented at the KTU (Kaunas, Lithuania) and Dr. Rasa Bruzgiene has served as a host in this context.

A plenty of editing sessions were held in order to discuss, edit and improve the actual content of the chapter. Moreover, besides the editing sessions, we have also run a couple of scientifically oriented sessions dedicated to performance improvement of localization system disrupted by environment conditions. To be more precise, I have worked together with the colleagues from the KTU and TU Graz (Austria) on the modifications of localization system in order to assure better QoS (accuracy and availability) under disruptions caused by environmental conditions, i.e. movement of obstacles. Face to face discussions on helped to come up with novel ideas, that could help to improve performance of the localization system under changing environmental conditions and thus improve QoS parameters of the localization service. Work performed during this STSM is related to the WG2 of the COST RECODIS.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

As a result of the editing sessions realized during the STSM, we have rapidly improved a quality of the chapter. A new version of the chapter can be found under:
https://www.overleaf.com/15402497tgwqvycqbmcw#

When it comes to the scientifically oriented sessions dedicated to performance improvement of localization system disrupted by environment conditions, I have proposed, together with the colleagues from the KTU and TU Graz, modifications of the system architecture that will help to implement proposed solutions. In this

context, we have focused on one of the most serious degradation factors in the context localization accuracy in modular positioning system, i.e. movement of obstacles. It is worth noting here that we have also analysed results for weather based distruptions, however, we concluded that impact of weather on a performance of the localization system was negligible. It should be noted here that the proposed solution to reduce impact of environmental changes on QoS of the localization system was implemented into our chapter, see sub-chapter 4.3 for more detail.

FUTURE COLLABORATIONS (if applicable)

It was agreed during this STSM that we will keep this collaboration, i.e. the collaboration between the UNIZA, KTU and TU Graz, in the future, even after finishing the chapter writing, as all the involved parties have found it very beneficial. An exact focus of the further collaboration is going to be specified later on an ad-hoc basis.