



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir
This project is co-funded by the European Union and the Republic of Türkiye



Technical Assistance for Turkey in Horizon 2020 Phase-II
EuropeAid/139098/IH/SER/TR

Turkey in Horizon 2020 Phase II

Mujdat Soyturk

Marmara University, Faculty of Engineering, VeNIT Lab
11.11.2022/General Training (Webinar) #6 - HE Partnerships

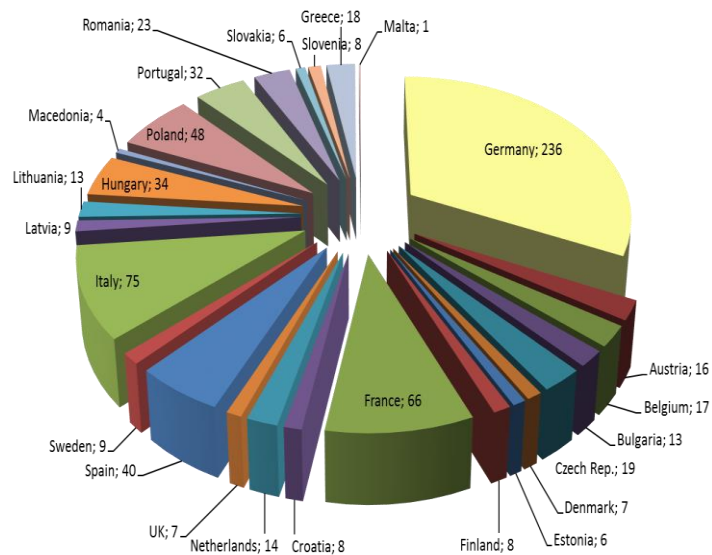
Marmara University, at a glance



- Largest University in Turkey
- Most successful University in H2020-ECSEL/KDT calls (Turkey)

Marmara University in numbers – 2019 (Two Continents - One University)

- 16 faculties (from health sciences to engineering), 11 institutes, 9 schools
- 3303 Academic Personnel
- 825 Research Projects (Funded)
- 84967 Students
- 57083 Undergraduate Students
(3313 Engineering Faculty)
- 18705 Graduate Students
(2859 Institute of Pure and Applied Sci)
- 231 Undergrad Programs
- 567 Graduate Programs
- 3.150 international students from over 116 different countries



Most preferred university by the foreign students in 2019.
Since 2005, Marmara is among the first three universities in Turkey which are preferred by the foreign students.

Marmara University, at a glance



Moving to the new campus area
(at Maltepe - Istanbul) starting in 2021.

New campus Area : 2.5 M m²
(2.455.112 m²)

Closed Area : 500.000 m²

Faculty of Engineering & Faculty of
Technology : 100.000 m²

- + new labs
- + research centers
- + technology park

Expertise and Research Areas



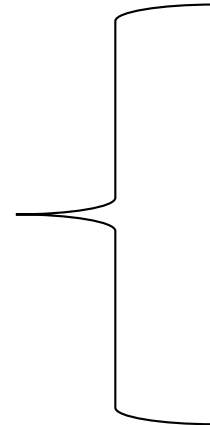
FACULTIES

- Faculty of Dentistry
- Faculty of Pharmacy
- Faculty of Health Sciences
- School of Medicine
- **Faculty of Engineering**
- Ataturk Faculty of Education
- Faculty of Arts and Sciences
- Faculty of Fine Arts
- Faculty of Law
- Faculty of Economics
- Faculty of Theology
- Faculty of Communication
- Faculty of Business Administration
- Faculty of Political Sciences
- School of Phys. Educ. and Sports
- Faculty of Technical Education
- Faculty of Technology



VeNIT Lab, www.venit.org

Vehicular Networks and Intelligent Transportation Systems Lab



Computer Engineering
Bioengineering
Environmental Engineering
Electrical and Electronics Engineering
Industrial Engineering
Civil Engineering
Chemical Engineering
Mechanical Engineering
Metallurgical and Materials Engineering

Description of our research interests



IoT, V2X Communications, Connectivity, Simulation

We are mainly interested in vehicular networks, V2X communications and integration to 5G networks. Other research interests are Intelligent Transportation Systems (ITS), Connected Cars, Internet of Things (IoT), Big Data: Sensing and Networking, and Sensor & Ad Hoc Networks. We do research on communication protocols in V2X, its demonstration and its simulation in large scale.

We are able to simulate vehicle traffic and their V2X communication using realistic simulation environment, including platooning, ITS G5 connectivity, and LTE network connectivity. We have experience and skills on network modelling and simulation including V2V, V2I, LTE-V2X communications and vehicle traffic generations in urban, rural areas and highways. Modelling and simulation, performance evaluation of the various network types are the strongest skills in addition to statistical analysis of the performance results.

Artificial Intelligence / Machine Learning

We model, devise, implement and analyse complex and intelligent systems employing not only existing state-of-the-art algorithms but also novel ones of comparable or outperforming performance in the fields of pattern analysis (PA) and machine intelligence (MI). We pursue intensive research on modeling, analysis and identification of multi-variate, sequential dynamic systems and make, in our research, extensive use, in particular, of clustering and dimensionality reduction, neural networks, Markov models both with a specific or variable order, learning automata and, whenever necessary, evolutionary algorithms to mention a few in PA and MI.

R&D References



[Marmara University](#)
Faculty of Engineering
Dept. of Computer Engineering

[VeNIT Lab](#)

**Most successful Uni. /researchers/
lab in H2020-ECSEL/KDT calls
(Turkey)**

www.venit.org

Leading Lab in V2X comms. (Turkey)

**Close Cooperation with the Industry &
Contributions to Science**

- Publications (Journal / Conference)
- Research Projects
- Researcher Support
- Patents

Competencies:

- **V2X** Communication & Connected cars
- Real Vehicle Trace Analysis
- Communications and **IoT** related solutions
- Reliability in Communication
- **AI** / Machine Learning based solutions for Industry 4.0
- Integrating AI / ML in networking solutions
- Image Processing
- Edge Computing
- Embedded AI
- Big Data Analytics
- Modelling & Simulation
- Wireless & Mobile Networks
- Wired/Wireless Protocol Stack

References/Projects (VeNIT Lab, only)

HORIZON EUROPE:

- [DECICE](#)

HORIZON EUROPE – KDT JU:

- [BRIGHTER](#) (Country Coordinator)

H2020-ECSEL JU:

- [iRel4.0](#) (Country Coordinator)
- [InSecTT](#) (Country Coordinator)
- [BEYONDS](#)

TUBITAK:

- [WATMON](#) (Project Coordinator)

Custom Solutions:

- Modelling & Simulation and Capacity Analysis of Istanbul BRT System
- IoT Solutions for Migros
- Data Analytics for Migros

We focus on;

- Horizon Europe and HE-KDT calls on Connected Cars, V2X, AI, IoT, Edge Computing, Manufacturing & FoF
- Edge Computing and AI
- Reliability in Communication
- Integration/the use of AI in Communications & Networks

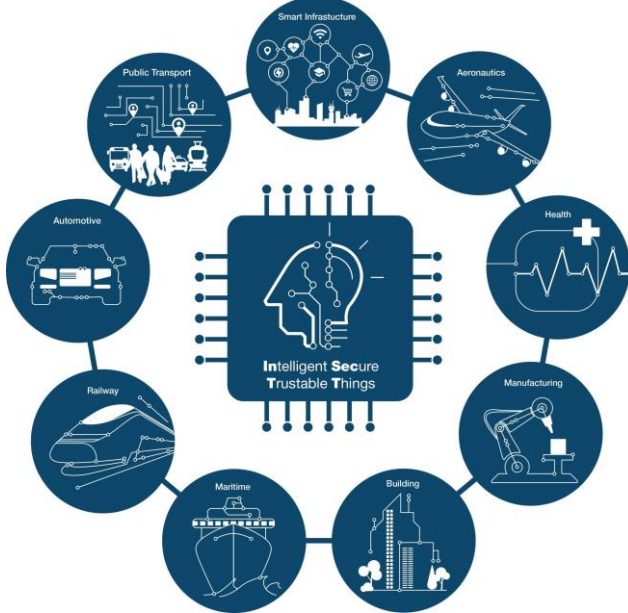
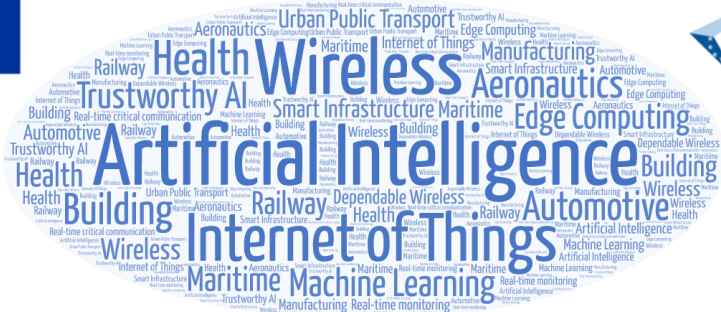


Vehicular Networks and Intelligent Transportation Systems Research Lab – VeNIT Lab

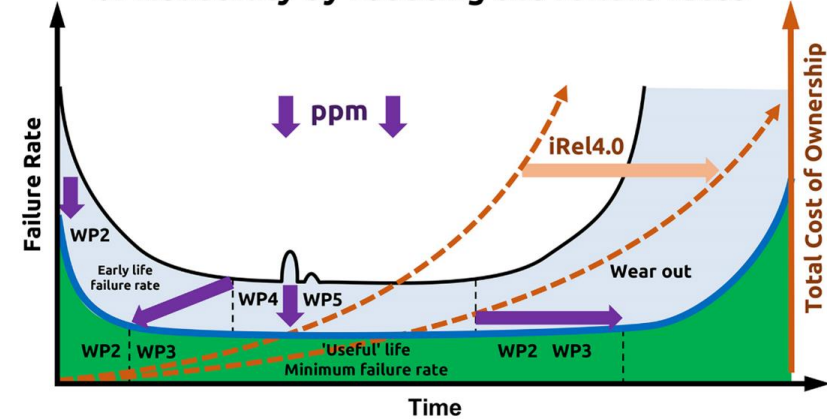


Intelligent Secure Trustable Things – InSecTT (Country Coordinator)
 H2020-ECSEL Project No: 876038, www.insectt.eu, 01.06.2020-01.06.2023

Intelligent Reliability 4.0 – iRel4.0 (Country Coordinator)
 H2020-ECSEL Project No: 876659, www.irel40.eu, 01.05.2020-01.05.2023



iRel4.0 tackles the future challenges of Reliability by reducing the failure rates



Vehicular Networks and Intelligent Transportation Systems Research Lab – VeNIT Lab



Building the fully European supply chain on RFSOI, enabling New RF Domains for Sensing, Communication, 5G and beyond – BEYOND5
H2020-ECSEL Project No: 876124, www.beyond5.eu, 01.06.2020-01.06.2023



Vehicular Networks and Intelligent Transportation Systems Research Lab – VeNIT Lab



Assoc. Prof. Mujdat SoyTURK
Director

15 Researchers (Full-Time)

AI/ML & Image Processing Team

IoT & Networking Team

V2X & Embedded Software Team

Academic Personnel

Ph.D. & M.Sc. Students

Undergrad Students & Interns

VeNIT Lab Research Team



VeNIT Lab Visits by EU Organizations

- VIRTUAL VEHICLE RESEARCH GMBH
 - AVL LIST GMBH
 - SILICON AUSTRIA LABS GMBH
 - UNIVERSITÄT LINZ
 - POLITECHNIKA GDANSKA (GUT)
 - ISEP - INSTITUTO SUPERIOR DE ENGENHARIA DO PORTO
 - Infineon Technologies AG
 - Infineon Technologies Austria AG
 - Austria Technologie & Systemtechnik AG
 - Elmos Semiconductor SE
 - Fraunhofer-Anwendungszentrum für Optische Messtechnik und Oberflächentechnologien, FhG AZOM
 - IWO Project b.v.
 - Jožef Stefan Institute
 - Materials Center Leoben Forschung GmbH
 - QRTECH AKTIEBOLAG
 - RISE IVF AB
-

Please give information on your involvement in the previous projects, and your experiences in the process of consortium formation and consortium meetings. How did you build the project consortium? Do you plan to submit a proposal in the 2023 calls.

- Participation in info days/ proposer's day
- Participation in training/project writing activities
- Be aware of the calls and know the requirements for the calls
- Get prepared
- Use of resources (time, effort, travelling, etc.)

Observe
(get more info)

Orient

Decide&Act

Please give information on your involvement in the previous projects, and your experiences in the process of consortium formation and consortium meetings. How did you build the project consortium? Do you plan to submit a proposal in the 2023 calls.

- Being active
 - In the events
 - After the events
- Being proactive
 - Before the events and calls
- Present not only the contribution but the added value of your contribution

Observe
(get more info)

Orient

Decide&Act

Please give information on your involvement in the previous projects, and your experiences in the process of consortium formation and consortium meetings. How did you build the project consortium? Do you plan to submit a proposal in the 2023 calls.

Suggestions regarding proposal writing

- Knowing the proposal structure
 - 3 sections: Excellence, Impact, Implementation
- Objective of the call \leftrightarrow objective of the proposal
 - Subobjectives
 - State-of-the-art
 - Beyond state-of-the-art
 - Then, how to implement
- Impact
 - Reaching the market
 - Exploitation
 - Added-value and building the value chain
- A collaborative project
 - Cooperate with others

Value-added products

Building a value chain



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What were the contributions of the project to you and your institution?

For our organization (and also for us)

- Cooperation with industrial organizations
 - Creating/involving in the value-chain
- Exploiting the project results
- Clear definitions and planning of outputs from idea to product
- Better management, especially financial and internal management issues



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What were the contributions of the project to you and your institution?

For me and our research lab:

- Continuity of our research team and our research studies.
- Funding support for publications
- Disseminations activities
 - organized joint workshops, and conferences with other partners,
 - reached more people and stakeholders
- Motivation, especially on research and collaboration
 - Increased our productivity
- Confidence
- Follow-up projects
- Taking more responsibility



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What were the challenges you encountered while carrying out the project? What would your suggestions be for those who will write a new project in this context?

Challenges & issues

- Lack of communication, inadequate communication
 - the major negative factor
- unresponsive partners

Suggestions:

- being proactive all the time
- attend the meeting with preparations
- provide the necessary inputs on time

Important to be invited **follow-up projects**



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Brief info on whether TÜBİTAK's contribution and assistance was received during the project preparation, at the project application stage and after the project is supported, in making the necessary financial reporting, sharing the intellectual property rights and solving the financial / legal problems, if any, and how beneficial our institution's support to the researchers within the project is.

- Exactly
- TUBITAK and NCP are all ready to support
- We appreciate their efforts and thank them.



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Vehicular Networking and Intelligent Transportation Systems Research Laboratory, VeNIT, www.venit.org