Toyota Motor Corporation supports a lecture on cybersecurity at the University of Electro-Communications

Toyota Motor Corporation (Toyota) have supported a condensed summer lecture given by Associate Professor Takeshi Sugawara[*1] of the Graduate School of Informatics and Engineering at the University of Electro-Communications.
The lecture consists of classroom lectures and hands-on trainings for the purpose of education on embedded and vehicle cybersecurity. Toyota supported the hands-on trainings on vehicle cybersecurity based on the content of the classroom lectures given by Associate Professor Sugawara.

For the hands-on trainings on vehicle cybersecurity, they have leveraged “PASTA for Education”, which were invented by Toyota researchers working in “TOYOTA OTEMACHI”.

PASTA (Portable Automotive Security Testbed with Adaptability) 1.0[*2*3] is a testbed for automotive cybersecurity research and development, and already available as open source. PASTA for Education[*4] follows the philosophy of PASTA 1.0 and it has advantage availability and portability rather than PASTA 1.0. As the same as PASTA 1.0, PASTA for Education also adopts general communication protocols for automotive. Therefore, the Toyota researchers expect to expand the usage of PASTA for Education, in particular educations and capture the flag (CTF) events.

With widely using connected vehicle, the importance of cybersecurity is getting better and better in the automotive industry. The automotive industry, which consists of a complex supply chain, desires engineers both inside and outside the industry who are familiar with vehicle cybersecurity. On the other hand, for cybersecurity engineers, the lack of environments and educational materials are big issues to learn vehicle cybersecurity. We believe that a hands-on training using PASTA for Education through collaboration with universities will solve these issues and let engineers in and outside of the industry be great interested in vehicle cybersecurity.

The lecture was held from August 21, 2023 to August 25, 2023. In order to achieve well understanding for students, Toyota employees have developed training program according to the classroom lectures as CTF events using open-source technologies[*5]. In addition, they have supported hands-on trainings conducted by students.

Toyota will continue their activities relevant to cybersecurity to development of technologies which ensure the safety and security of all customers who use automobiles.

References

*1

Sugawara Lab., The University of Electro-Communications

https://www.sugawara-lab.jp/member/sugawara_e

*2

GitHub – pasta-auto/PASTA1.0: PASTA: Portable Automotive Security Testbed with Adaptability

https://github.com/pasta-auto/PASTA1.0

*3

Portable Automotive Security Testbed with Adaptability PASTA

https://www.chip1stop.com/sp/products/toyota-pasta_en

*4

Tsuyoshi Toyama, Ayaka Matsushita, Hisashi Oguma, and Tsutomu Matsumoto

Series of PASTAs to Meet Diverse Needs

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*5

GitHub – CTFd

https://github.com/CTFd