Toyota Motor Corporation, Toyota Motor North America, Inc. and Toyota Tsusho Systems US, Inc. organized a CTF event

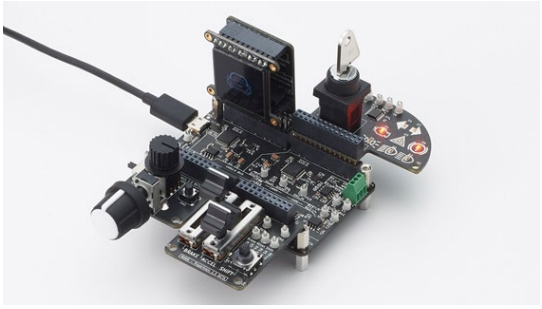
Toyota Motor Corporation (Toyota), Toyota Motor North America, Inc. (TMNA), and Toyota Tsusho Systems US, Inc. (TTS-US) have jointly organized a capture the flag (CTF) event, named “Hack Festa 2022”, on October 22nd and 23rd.
While international interactions are difficult due to COVID-19 pandemic, they have conducted a trans-pacific simultaneous CTF by using online facilities.

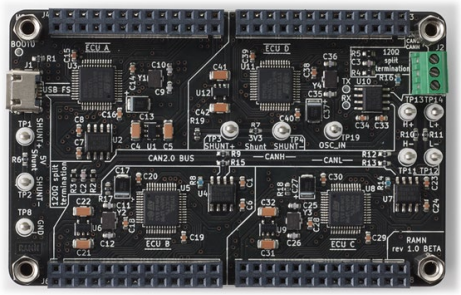
As CTF targets in Hack Festa 2022, they have leveraged “PASTA for Education” and “RAMN”, which were invented by Toyota researchers working in “TOYOTA OTEMACHI”.

PASTA (Portable Automotive Security Testbed with Adaptability) 1.0[*1*2] is a testbed for automotive cybersecurity research and development, and already available as open source. PASTA for Education 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 education and CTF.

PASTA

RAMN (Resistant Automotive Miniature Network)[*3] is a PASTA-like testbed which is more conscious towards low-cost fabrication. Due to such excellent portability, RAMN has been already adopted by overseas CTFs and automotive cybersecurity workshops[*4]. Also, hardware and software specification of RAMN has been already published as Open Source Software (OSS)[*5].



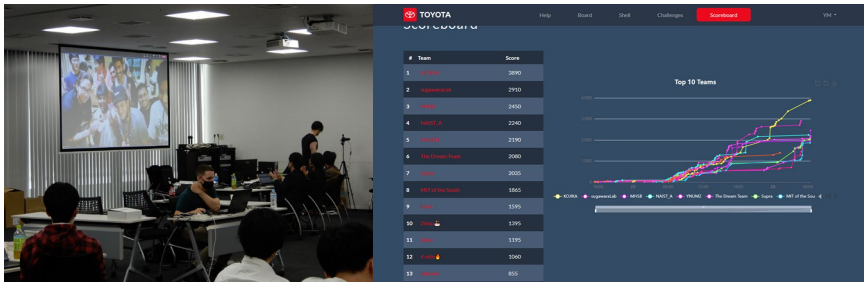


CTF is a kind of competition event in the information security field. Participants in a CTF take advantage of their expertise and skills to find hidden “Flags” (answers) in time and compete for the total number of points assigned for the flags which they have obtained. Also, the participants struggle with given “Challenges” (questions), which are sometimes solved in a quiz-like format and played as pseudo-offensive and defensive battles within a provided network at other times.

These days, the automotive industry must conform to United Nations Regulation No. 155 and ISO/SAE21434 which is referenced from the regulation. They are sure that collaboration with hacking communities is a clue to solve such issues.

Toyota, TMNA, and TTS-US organized CTF as Hack Festa 2022 and aim to realize a framework for ethical hacking.

Hack Festa 2022 launched 6:00AM JST on October 22nd and 4:00PM CDT on October 21st. And it safely finished 12:00PM JST on October 23rd and 10:00PM CDT on October 22nd with taking some rests. Seven teams from four Japanese universities and six teams from one US university participated in Hack Festa 2022 and competed for the top position. Toyota and TMNA staff created most of challenges and supported participants to solve the challenges.



Toyota, TMNA, and TTS-US will continue their activities relevant to cybersecurity, including CTF and lead such activities to development of technologies which ensure the safety and security of all customers who use automobiles.

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