

QRTECH is an independent company specialized in product development, industrialization and supply of automotive electronics and software. Our organization and competence masters all phases of development including requirement engineering, electronics and software development, environmental and EMC qualification and manufacturing. Today QRTECH electronics can be found in vehicles made by AB Volvo (Volvo Truck, Volvo Bus and Volvo CE), BMW, Daimler, Ford, Mack, Renault, Volvo Cars, Jaguar, Land Rover, Mazda, etc. QRTECH facilities are located in Gothenburg with high capability electronics and vehicle labs.

Evaluating the possibility of executing scrips on an embedded platform

The complexity in vehicles today requires a huge amount of specifications, where the environment the vehicle is operating in is considered. These requirements directly reflects both SW and HW, which must be designed in a corrected way. The task to verify and validate the large amount of details defined by the specifications is both a time consuming task as well as critical for the final product to be accepted by the consumer.

Manually tests are today more and more transformed into automatically tests that are executed every time a change to the product is made. The main purpose is to minimize the risk of introducing (or re-introducing) faults and therefore increasing the quality of the product. Some tests are easy to convert to automatically tests, some are more difficult, especially if time sets strong limitations. Automated tests are in many cases executed in a PC environment and this gives weak real time behaviors. So, another environment for developing some tests is needed. Naturally, a normal embedded SW could be developed but that will set hard limitations on one specific test situation. Therefore, executing scrips on an existing embedded test equipment would both increase real time behavior as well as decrease development time for specific tests.

The objective for this Master Theses is to investigate which scrip languages that exist and select the one that looks the most promising. Thereafter, compare performance parameters between a script downloaded to an embedded system and the same functionality implemented in a more traditional way (for example in C-code).

The thesis would consist of:

- Literature studies and overview of suitable script languages executable on an embedded system.
- Adopting the script interpreter to the platform
- Adding additional interfaces to be able to use the embedded HW for evaluation.
- Writing a suitable script to be used during evaluation
- Converting the script into “C-code” to be used during performance analysis.
- Analysis of benchmarked results such as time performance, memory and processor load etc.

The thesis project would be connected to several research projects concerning autonomous drive at QRTECH and creates the opportunity to provide input for industrial research and product development. We believe that team work is a key to success and therefore encourage this master's thesis to be conducted by two people. The thesis will be carried out at QRTECH premises in Mölndal during the spring of 2019.

Please send your application including CV and report card to:

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