Abstract

Today's modern vehicles tend to have more and more electrical control units (ECUs), as time goes. These units are responsible for functions that control safety features like breaking and steering assisting systems. They also control the vehicle's comfort system, for example the windshield wipers and the seat heating system.

These control units are linked with communication buses, that utilize AUTOSAR, which is a software architecture, that was developed to make communication between the products of suppliers standardized.

The AUTOSAR version 4.3 was released in late 2016, and my task is to study it's architecture, communication stack and learn how network management works in this standard. After that I need to modify three network management modules' 4.0 version implementation to fit the specifications of version 4.3.

First, I will present AUTOSAR, it's architecture, communication stack, and show it's network management functions in details.

Then I describe the Network Management Interface, CAN Network Management and FlexRay Network Management modules' functions, the differences between version 4.0 and 4.3 and how these changes can be implemented.

Next chapter is about how AUTOSAR defines the configuration of these modules, and the process of making a configuration generator, that creates the configuration files.

Lastly I present the methods that are used to test these modules, and to make sure that everything fits the described specifications. I will go into details about two testing methods that I use to be certain that my modules function correctly.