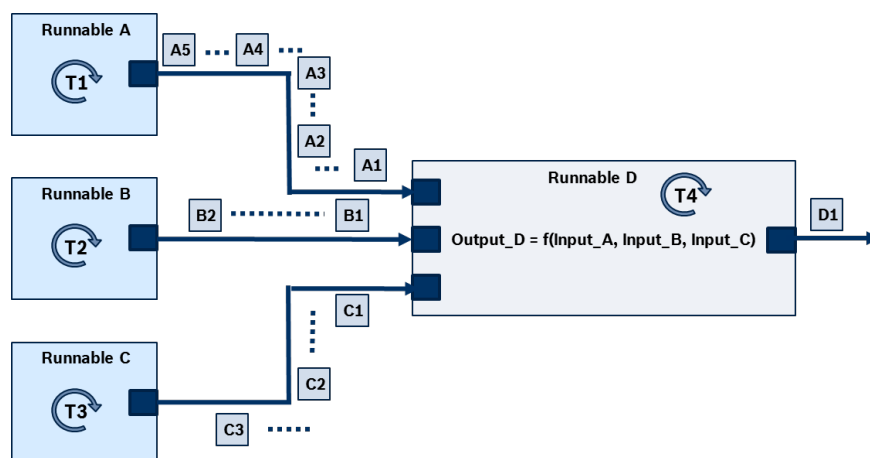


Introduction

In a driver assistance application, a runnable (i.e., thread) generates an output (e.g., lane departure warning) by simultaneously processing inputs received from other runnables which could be scheduled in different time slots.



The amount of data to be transferred between runnables in driver assistance applications is rather large compared to classical automotive control units. The large port data and high data rates lead to significant resource consumption when data is copied inside the communication stack (memory bandwidth, CPU cycles). Furthermore, in a synchronous callback-based communication, if a receiver simultaneously processes different input data streams, it will need the data for longer time than the callback execution, often leading to the need for copying of data.

Because of these reasons, driver assistance systems rely on a communication API that focuses on asynchronous communication. The task of managing data resources is passed to the communication middleware below the API. In this way, the individual developer has not to deal with the lifespan of data.

Master Thesis

You will (remotely) work in the *Cross-Domain Computing Solutions* division and *Driver Assistance* department based in Leonberg, in a collaboration with the Faculty of Informatics at TU Dortmund for a master thesis.

The thesis will focus on work related to the communication middleware, e.g., by implementing novel features, optimizing or improving the existing code-base, improving the automated tests, etc.

Required Skills

- ▶ Proficiency in C++ (templates, inheritance, poliphormism).

Skills Acquired After Master Thesis

- ▶ Perfected C++ knowledge.
- ▶ Worked as part of an agile (scrum) team of experienced embedded software developers/architects.
- ▶ Exposure to the field of embedded software development for automotive and driver assistance systems.

Link To Job Portal

<https://jobs.smartrecruiters.com/BoschGroup/743999767393285-thesis-middleware-development-for-driver-assistance-systems>