Hochshule Hamm-Lippstadt

Department of Electronic Engineering

Electronic Engineering Laboratory

Proposal sample for HW/SW co-design

Efficient cross-traffic management

Team

Brian Kelein Ngwoh

Hermann Anguiga

Enkeledi Mema

Luis David Cabezas

Supervisors

Prof Achim Rettberg

Prof Stefan Henkler

Problem Statement: Increasing the fluidity of the traffic at intersections

All over the world, traffic intersections are places where traffic slows down and where many collisions occur. Some models recently implemented have barely improved the situation.

Here, we are proposing a promising model of intersection which will definitely change the situation. In our model, conventional traffic lights will be replaced by an automated traffic agent called the traffic manager. This automated agent is the central actor of the overall coordination of the intersection crossing. Following a particular algorithm, it will help vehicles, efficiently and fast, crossing the intersection without collision.

Objectives:

- Implementing a traffic management system with an automated traffic agent
- Eliminate traffic lights by using a more efficient intersection cross managing method/model.

Literature Review

1. Choi Myungwhan. Reservation-based traffic management for autonomous intersection crossing from International Journal of Distributed Sensor Networks. Volume 15. Date 12/2019
2. Azimi Reza. Intersection Management using Vehicular Networks from SAE 2012 World Congress & Exhibition. Page 2012-01-0292. Date 16-04-2012

Project Schedule Plan

- April 28: requirements and use-cases
- May 12: show models and diagrams
- May 26: first abstract implementation
- June 2: proposal for HW/SW codesign
- June 16: codesign implementation
    1. SW with freeRTOS
    2. HW with ModelSim
- June 28: final version & deadline for report submission