

Master 2017

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LBus2 Sniffer Implementation.

ABSTRACT - Masterthesis

This thesis discusses detail implementation of the Sniffer having combination of Hardware and software to transparently sniff the data over Lütze Bus2. This thesis has two major purposes: (1) Implement hardware which can sniff data transparently (2) Demonstrate this sniffed data over PC. Step by step approach discussed which included theoretical concepts, hardware design, software design and testing of the implemented concepts. The literature review highlighted necessity of using integrated design consisting of hardware and software for sniffing. The hardware design and testing investigated possibilities of using different hardware's for sniffing the data. Further the necessity of developing protocol for the existing L-Bus2 frame explained in detail. The designed protocol for encapsulating sniffed L- Bus2 data tested successfully over Hardware. Further analysis carried out for investigating detailed frame structure of signals captured from L-Bus2. This encapsulated data transferred using FTDI cable to PC where a windows application developed using C# (.net) to decode and save the data over PC. Detail implementation carried out for software design using Enterprise Architect and two design approaches for windows application development discussed in detail. Finally, the test carried out to check the reliability of communication channel which transfers sniffed L-Bus2 data from Hardware to PC. The concluding part highlights various aspects related to hardware design, software design and testing results. L-Bus2 sniffer successfully captured various signals from L-Bus2 such as address bus, data bus, reset. The captured signals displayed over PC using Windows application development in C#. The conversion method such as Byte array to Hex conversion in String implementation caused some data loss which recommended to use Ring buffer implementation with state machine approach for decoding the data over PC using Windows Application development. The tests were performed to check the data transfer from embedded hardware to PC which showed no data loss occurred while transferring data via communication channel.