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Efficient controller area network data compression for automobile applications

Key words: Controller area network (CAN), Electronic control units (ECUs), Data compression, Signal rearrangement

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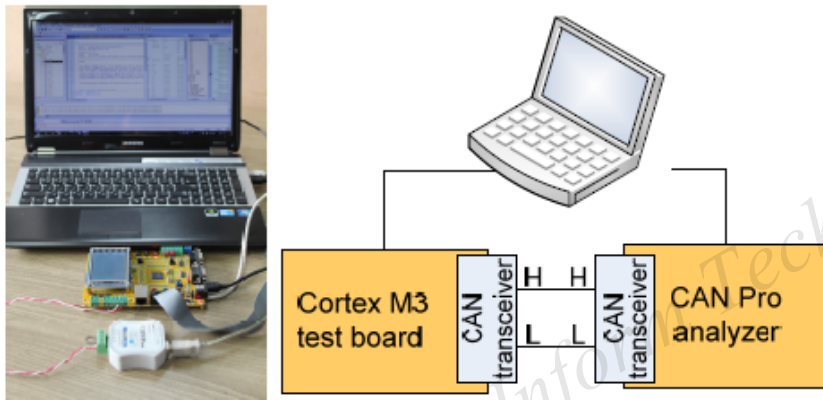
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Motivation

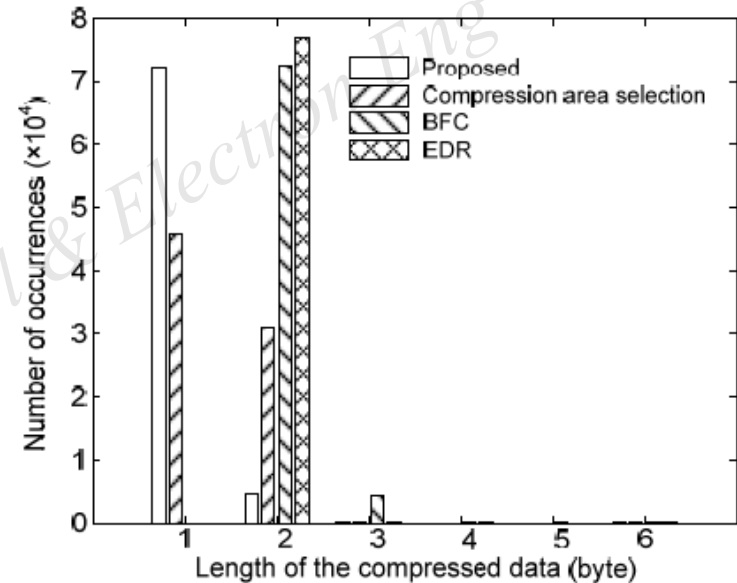
Disadvantages of existing methods: EDR algorithm, it is needed to combining signals of shorter lengths into groups. In BFC algorithm, it is needed to predict the maximum compression range of ± 15 . In compression area selection algorithm, the length of the data field is additionally increased by up to 8 bits due to the header bits.

Proposed method: As opposed to EDR, BFC, and compression area selection algorithm, with the proposed method, it is not necessary to predict the maximum difference values in successive CAN messages.

Test Environment & Results



Test environments, including the CAN pro analyzer. By using a Cortex M3 embedded test board, 64-bit EMS CAN data compression can be performed within 0.16 ms.



Comparison of ID 43F CAN data compression efficiencies under normal driving.