# Bosch's CAN bus
# Investigation of the standard

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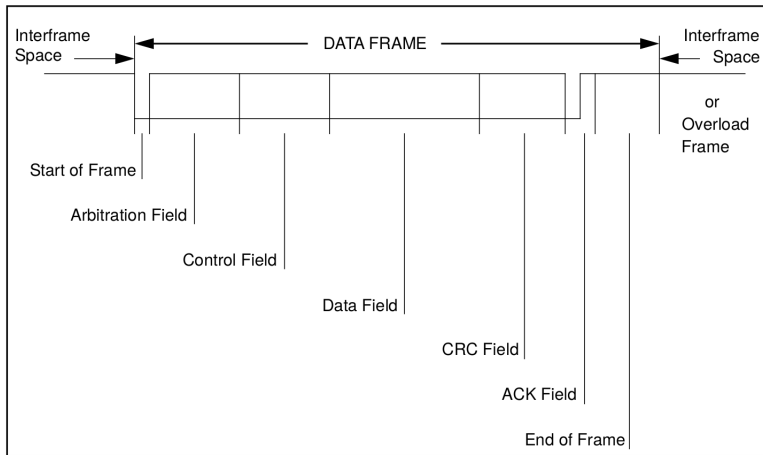July 19, 2016

# INTRODUCTION AND BASIC CONCEPTS

- Bosch documentation [1]

# MESSAGE TRANSFER AND VALIDATION – 1

Overview:

- Information is sent in fixed format messages of different but limited lengths
- When free, any connected unit may send messages over the bus
- The content of the message is named by an identifier

# MESSAGE TRANSFER AND VALIDATION – 2

# MESSAGE TRANSFER AND VALIDATION – 3

- A unit sending a message is the "transmitter" of that message
- It stays transmitter, until the bus is idle or it loses arbitration
- A unit is called "receiver" of a message, if it is not the transmitter and the bus is not idle

# CODING AND ERROR HANDLING – 1

Overview:

- Bit stuffing $\rightarrow$ control mechanism
- Distortions etc. $\rightarrow$ error handling to achieve error tolerance
- 5 different error types (Bit, Stuff, CRC, Form, ACK)

# CODING AND ERROR HANDLING – 2

- ▶ Message passing mechanism, no additional structure needed
- ▶ Errors broadcasted when detected
- ▶ Semantics important for correct transmission
- ▶ Drivers: reliability, error limitation
- ▶ Problem: new error types?

# FAULT CONFINEMENT

# BIT TIMING REQUIREMENTS

- List of definitions and rules
- Strength: short, but includes everything important
- Weaknesses: almost text only, hard to read (structure), like a glossary
- Improvable by usage of more pictures and examples

# CAN IMPROVEMENTS

# CONCLUSION

# REFERENCES

Robert Bosch GmbH.
CAN Specification.
http://www.bosch-semiconductors.de/media/ubk_
semiconductors/pdf_1/canliteratur/can2spec.pdf.
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