

fortiss

Platooning Team

V2V Communication

May 9, 19

Content

- UDP Broadcast
- V2V Message Structure
- Transition to the AF3 Model
- Message Filtering
- Implementation

UDP Broadcast

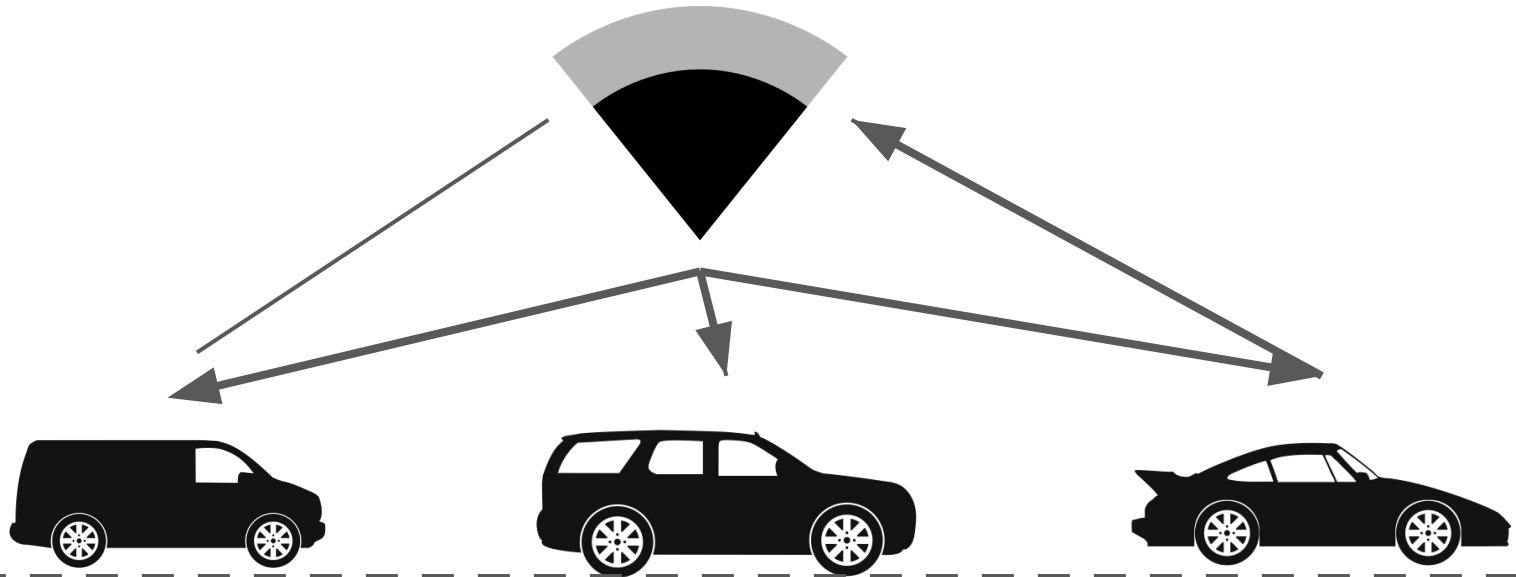
What is UDP?

Why do we use UDP?

Broadcast messages

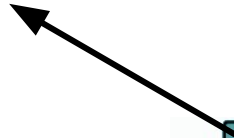


UDP Broadcast

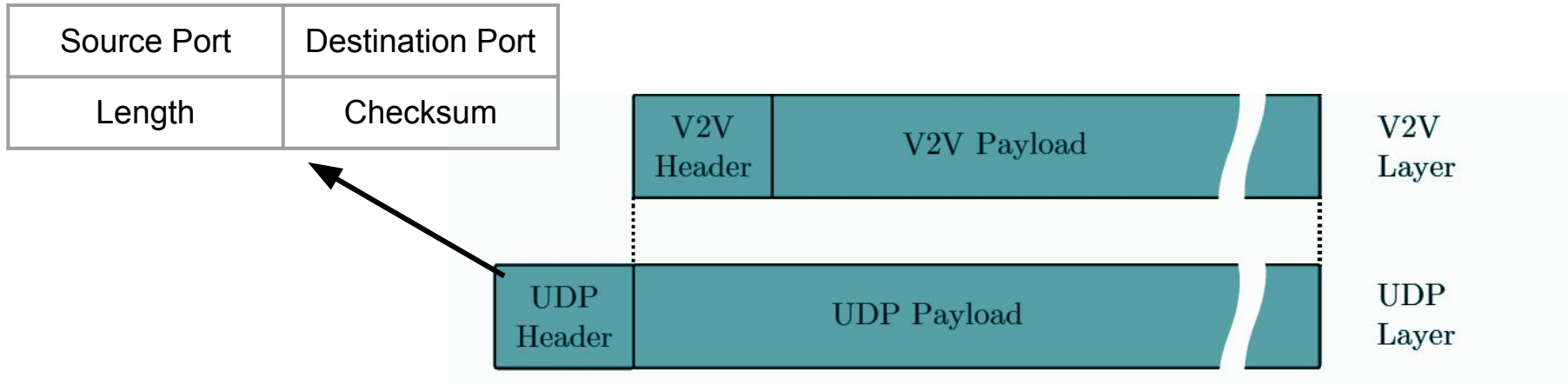


Message Structure

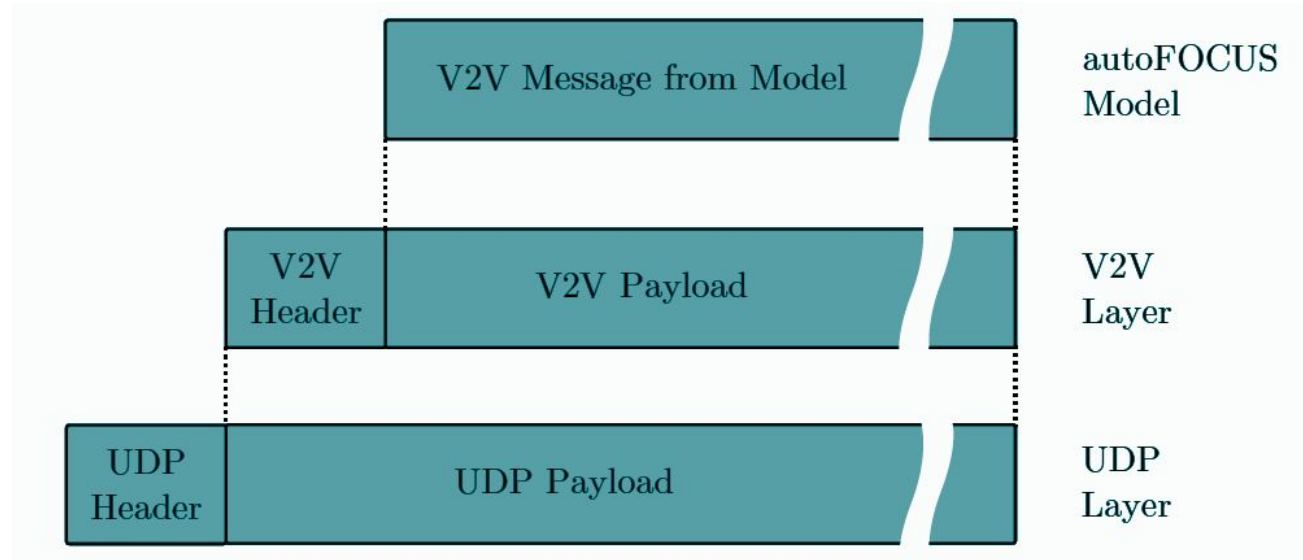
| | |
|-------------|------------------|
| Source Port | Destination Port |
| Length | Checksum |



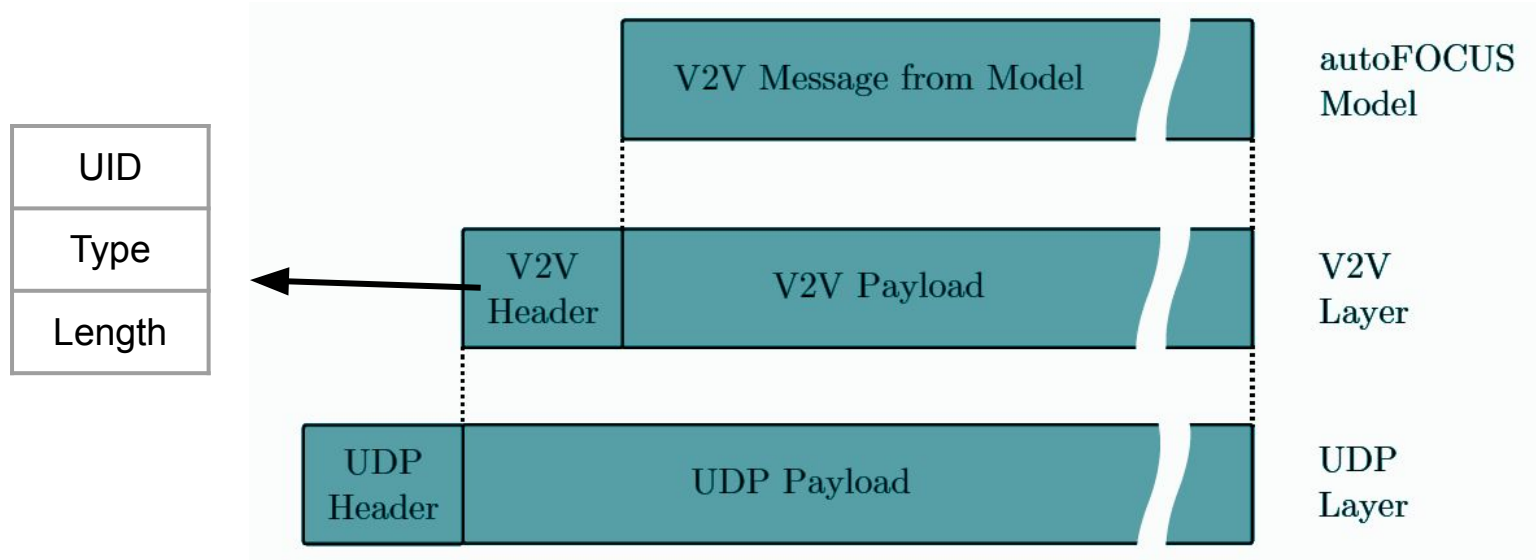
Message Structure




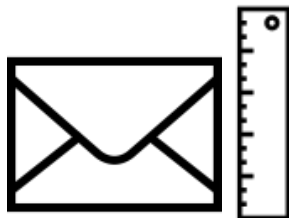
Message Structure



Message Structure

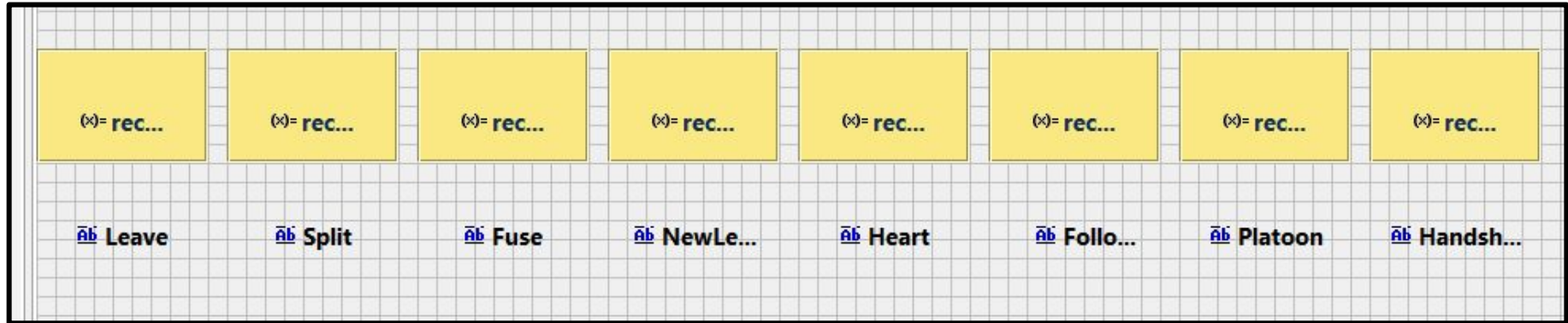


Message Structure

| UID | Type | Length | | | | | | | | | | | | | | |
|---|---|--------|------|-------------------|--|------------------|--|------|-----|------------|-----|-------------|-----|----------|-----|---|
| <div></div> <p>Why not IP?</p> | <div><p>8 types:</p><ul style="list-style-type: none">• Leave• Split• Fuse• NewLeader• Heart• Follower• Platoon• Handshake</div> <div><table><tr><th>Name</th><th>Type</th></tr><tr><td>▼ Data Dictionary</td><td></td></tr><tr><td>▼ MessagePlatoon</td><td></td></tr><tr><td>• id</td><td>int</td></tr><tr><td>• leaderID</td><td>int</td></tr><tr><td>• platoonID</td><td>int</td></tr><tr><td>• tailID</td><td>int</td></tr></table></div> | Name | Type | ▼ Data Dictionary | | ▼ MessagePlatoon | | • id | int | • leaderID | int | • platoonID | int | • tailID | int | <div></div> <p>Correct amount of bytes</p> |
| Name | Type | | | | | | | | | | | | | | | |
| ▼ Data Dictionary | | | | | | | | | | | | | | | | |
| ▼ MessagePlatoon | | | | | | | | | | | | | | | | |
| • id | int | | | | | | | | | | | | | | | |
| • leaderID | int | | | | | | | | | | | | | | | |
| • platoonID | int | | | | | | | | | | | | | | | |
| • tailID | int | | | | | | | | | | | | | | | |

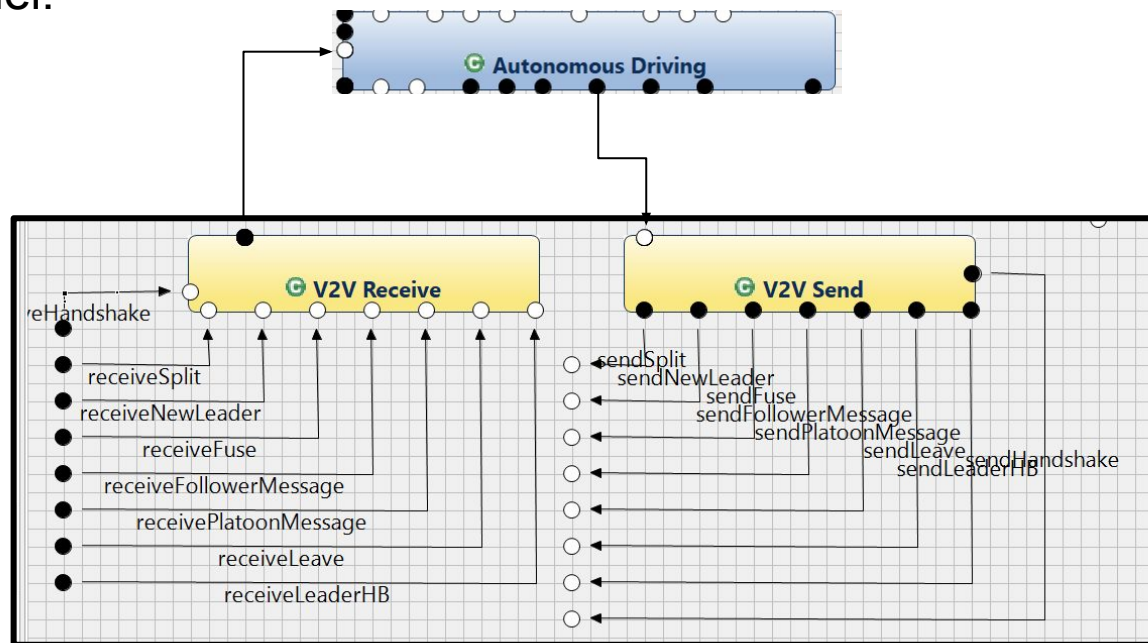
Transition to the AF3 Model

V2V Comm Simulator:

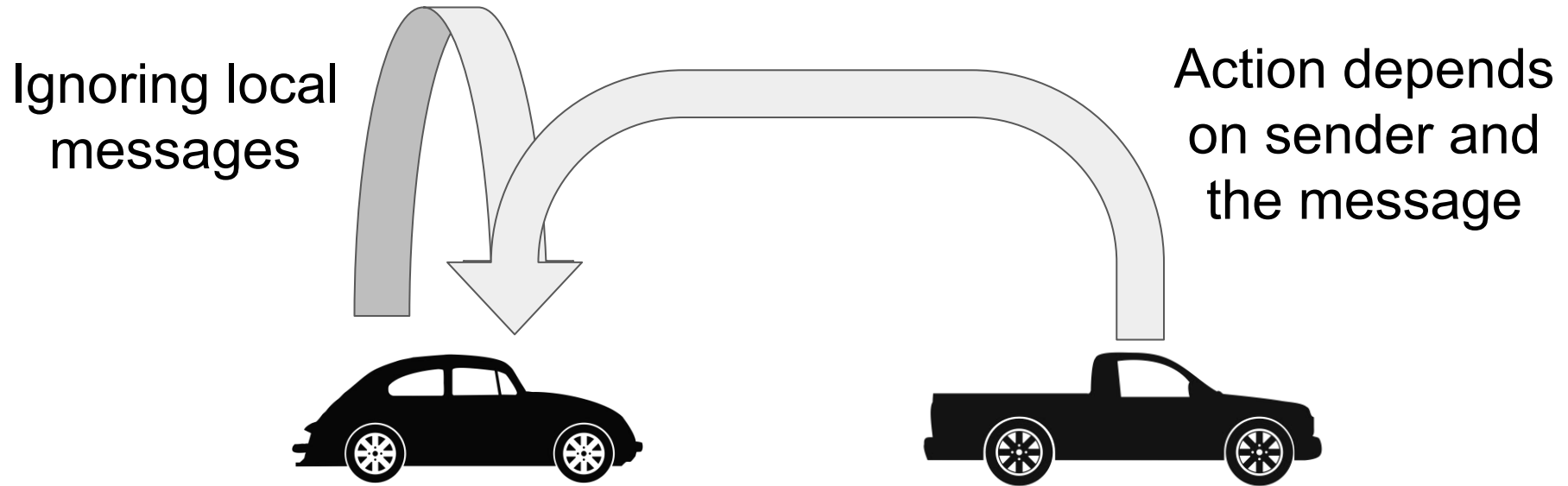


Transition to the AF3 Model

In the AF3 Model:



Message Filtering



Implementation

- ❖ Written in C for Raspberry Pi 2

