IOT Hack-A-Thon 2019

Data Schema Description

General

The data generator will produce sample Basic Safety Message. These messages are part of the Car-2-Car or Car-2-Road communication used in modern cars. These message may be picked up by other cars or road side units.
We limited the number of fields to a subset of the original message format. The messages are published in a CSV-Format. But still not all fields will be filled with data in the simulation. Normally these messages are broadcasted about 10 times per second from each car. In the current data stream we simulate some data reduction has been applied and we only send every 10th message. Therefore we reduced the data rate to 1 message per second per car.

Field Description

1. RSU-ID
   The Id of the road side unit picking up this message
2. Temporary Id
   A temporary Id used by this car. The car has to create a new temporary id at least every 30 seconds
3. Message Count
   The Message count will be incremented by the car each time a message is send out. It will be reset to one, if the car has to create a new Temporary Id after at least 30 seconds. As we only pick up every 10th message the message count will always be a multiple of 10.
4. GPS Timestamp
   In real life the time has to be synced based on the GPS signal. But as the messages come in over different RSUs the timestamp of the messages will not be globally sorted. But they are in order for each simulated car.
5. GPS Latitude
   The Latitude part of the GPS position for this message.
6. GPS Longitude
   The Longitude part of the GPS position for this message
7. Elevation
   The elevation of the car.
8. Heading
   The Heading of the car. Value range 0-360. 0 = North, 180 = South, …
9. Speed
   The current speed ot the car in meter/second
10. Steering wheel angle
    The steering wheel angle of the car. Measure in 1/10th degree (one turn of 360 degree is 3600).Positive number is turn to the right.
11. Acceleration Long
    The current acceleration of the car along the Longitudinal axis (driving direction). Measured in meter/sec^2. Negativ acceleration means car is slowing down.

12. Acceleration Lat
    Acceleration along the lateral axis (orthogonal to the driving direction).
13. Acceleration Vert
    Acceleration of the car along the vertical axis.
14. Yaw rate
    The Yaw rate is the rate the car is rotating around its axis. Measured in degrees per second.
15. Brake applied status
    The breake status. Each bit identifies one wheel with an active break on wheel set the bit to 1.
16. Traction control system status
    Information about the traction controil system being active. Values having the following meaning: 0: NA, 1: System off, 2: System on but not engaded, 3: System on and engaged.
17. Antiblocking system status
    Information about the ABS system status. Values having the following meaning: 0: NA, 1: System off, 2: System on but not engaded, 3: System on and engaged.
18. Stability control status
    Status of the stability control system. Values having the following meaning: 0: NA, 1: System off, 2: System on but not engaded, 3: System on and engaged.
19. Brake boost status
    Information about brake boost being active or not. Values having the following meaning: 0: NA, 1: System on but not engaded, 2: System on and engaged.
20. Auxiliary break status
    Information about auxiliary brake being active or not. Values having the following meaning: 0: NA, 1: System on but not engaded, 2: System on and engaged.
21. Width
    Width of the vehicle in centimeter
22. Length
    Length of the vehicle in centimeter
23. Event flag
    Additional events the vehicle wants to notify.