TJA3 Requirements Document Inspection Summary

Content

Page 1: In 1.2 in the scope section, specify that TJA follows at 1 of 3 preset distance, not at a distance. There are many places in the SRS where the writing implies the system should work on all limited access highways, or any highway at all, when it should only work on particular, pre-approved limited access highways.

Page 2: In 2.1, the last sentence is vague and needs to be built upon. In 2.2, when TJA shuts down, will ACC stay on? How will GPS determine if there is still traffic (should TJA or ACC determine that)? In 2.2, there is no mention of what the camera does and no mention of lane following.

Page 4: Requirement 1.1 puts an emphasis on zero being the ideal value for the closing rate but only describes the scenarios where the value is not zero. It may be a good idea to also explain what a closing rate of zero means and why it is ideal for the system. Requirement 1.3 describes the lane following system in a way that disagrees with the original project description. It should not correct the driver's input by steering back into lane, it should resist the driver's input to some extent but allow the driver at some point to make the decision. Requirement 3 doesn't really seem testable, and it being the purpose of the system as a whole and not a testable aspect of its functionality makes me think that it shouldn't really be a requirement.

Page 5: For requirement 6.2, it might make more sense for clarity and testability reasons to be more specific and say that the system cannot run when the vehicle is shifted into reverse, not just reversing. In requirement 7, the TJA should error or disengage if camera is disconnected, or at least disable lane keeping. Requirement 10 does not seem testable in its current state, it may be best to consider rewording it. Requirement 7.2.1 needs to be expanded on and the way it is now doesn't give enough information and feels unfinished. Requirement 8.3 needs to be rewritten to make it testable, because right now there is no exact testable way to decide if the driver is paying attention. It's too vague and up for interpretation. Requirement 8.3 might make more sense to be separated from requirement 8, since requirement 8 is about the driver having control over the system but 8.3 is about the system overriding the driver under certain conditions. In 8.3, how does tactile feedback work. In requirement 9, need to explain how the buttons will be installed on the steering wheel.

Page 7: In figure 1, it might make more sense to change the alert external actor into dashboard and sound system external actors since the dashboard for the vehicle will most likely not be just used for the TJA, but the alert will. For this reason, a change makes more sense. The "Car Length Distance Selections" use case forgot the extension point for "2 car length". The "Movement" use case forgot the extension point for "not moving". Turn signal should be an external actor because there is more than one system in the vehicle that uses the turn signal. It may be out of the scope for the TJA system itself to be the one detecting the slip condition, it would make more sense for a system outside of the TJA but a part of the vehicle to make the TJA system aware of a slip condition. "Bad Weather" and "Sensor Blocked" use cases may be better as the same use case since the only time weather is bad enough is when the sensor is

blocked or made unusable by it. Also, the concept of “Bad Weather” may be too vague to test. Additionally, it seems requirements 1 and 1.1 may not be referenced in the use case model.

Page 15: The domain chart needs an element for the camera that is supposed to watch the driver. All the operations included in the data dictionary are not present in the model.

Page 16: Brakes, need to add operations to model. Accelerator, add operations to model and be spelled correctly. ACC System, add operations and attributes to model, different names on description and model, and brakes and accelerator should be in relationship. There are many elements that have “activate” as a Boolean when it might make more sense to use the term “active” or “is_active” because “activate” is a verb and sounds more like an operation than an attribute.

Page 17: Dashboard, attribute doesn’t match model, add operation to model. Radar, attributes don’t match descriptions, add operations to model.

Page 18: Wheel Monitor, add operation to model, TJA isn’t an aggregation. Lane Following System, add operations and attributes to model. Camera, class name on model (Forward Looking Camera) doesn’t match description, add operations and attributes to model.

Page 19: Turn Signal, add operation to model, add model attribute to description. Steering Wheel, add operation to model, add model attribute to description. Resume Button, add operation to model.

Page 20: Cancel Button, add operation to model. TJA, add operations to model, wheel monitor relationship is a usage instead of an aggregation. GPS, add operations to model.

Page 21: In Figure 3, show how ACC class is polymorphism for TJA, or how TJA uses base class functionality, operations need to be added to model.

Page 22: Figure 4, same as above, show ACC -> TJA, operations need to be added to model. Figure 5, same as figure 4 , add operations, and show ACC->TJA hand off.

Page 23: Figure 6, Gas pedal is not shown flowing through TJA to ACC, add operations to model.

Page 24: Figure 7, TJA not shown flowing through ACC to get to radar, add operations to model. Figure 8, add operations to model.

Writing

Page 1: In 1.4, it should say section 3 instead of section 2.

Page 2: In 2.1, deactivate is spelled incorrectly.

Page 3: Apportioning is spelled incorrectly in the section name.

Page 5: In requirement 7, deactivate is spelled incorrectly.

Page 16: On the “Brakes” card, you write “TJA System used the brakes” when it makes much more sense grammatically to say “TJA System uses the brakes” in that sentence.

Page 18: There is a grammar issue in the “Lane Following System” card. It says, “the car if going outside” which I assume misused “if” instead of “is”.

Page 19: In the steering wheel cars, you write “if” as “IF”. It might be best to change this even if you did intend it because the reader may misperceive it as an acronym.

Page 20: There is a grammar issue in the “TJA” card. It says “TJA is a slip condition” which I assume misused “is” instead of “if”.

Page 29: In the text above figure 13, I think it's more grammatically correct to use “Afterwards” instead of “After” to start the second sentence.

Page 30: There is an extra dot in the citation.