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From: david.agnew@continental-corporation.com

To: andre223@msu.edu

Cc:

Date: Mon, 4 Nov 2013 16:29:03 -0500

Subject: Re: APCA Team 2 - Prototype Version 1 is up!

Nikhil,

sorry for late reply.

see comments below in blue

Best Regards,

David Agnew

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david.agnew@continental-corporation.com

From: andre223@msu.edu

To: david.agnew@continental-corporation.com

Date: 10/29/2013 08:40 AM

Subject: APCA Team 2 - Prototype Version 1 is up!

Hey Mr. Agnew,

APCA Prototype Version 1 for our project is on the following link:

<http://www.cse.msu.edu/~cse435/Projects/F2013/Groups/APCA2/web/prototype.html>

And also we have a few questions for you:

1. Is the pedestrian sensor a standalone system or connected to the vehicle braking system?

Sensor is connected but only via the controller.

Sensor output goes to controller. Controller output goes to braking system.

2. What part of the vehicle is responsible for returning the vehicle to a steady speed?

Good question (did I miss that in the spec?). It is the APCA system.

3. Should the sensor consider the pedestrian's +/- 5 degrees in direction since all the scenarios involve pedestrians traveling perpendicular to the vehicle?

The sensor has the accuracy stated in spec.

You can assume the pedestrian walks perfectly perpendicular. But the algorithm needs to consider that what the sensor is reading may be off by stated accuracy.

4. How should the fail safe mode be tested with the given scenarios?

Assume a signal is received from brake system that it is in fall-back mode. The brake system model needs to reflect the reduced braking capability in this mode. The ACAP algorithm receives the fall-back signal and is tested using the reduced brake system.

5. Should the maximum deceleration always be used?

That is up to the design

team. Best choice is to meet requirements. If you think there is a missing requirement, you can make an assumption and go forward with it.

6. In the realistic world, say the APCA system malfunctions - the sensor doesn't catch the pedestrian or the brakes fail to apply, should we incorporate that into our specifications considering that is a major security protocol? In my spec, I stated it has to work every time, but in reality a requirement could exist for what we call "false negatives" (system should have activated but didn't). Example: only 1 in 1×10^7 potential system activations shall result in a pedestrian collision due to undetected system failure. The challenge is how do you verify it. If you want to mention this and propose a verification would be good. In reality, the sensor is the most likely system element to cause a false negative. , If you can explain more about how to go about it that would be great.

Thank you for taking the time to look over this email!

Looking forward for your response.

Thanks,
Hope you have a wonderful week!

--Nikhil (Nik) Andrews