

Épreuve de DNL Anglais Physique-Chimie

Sujet n° 3 – Série S

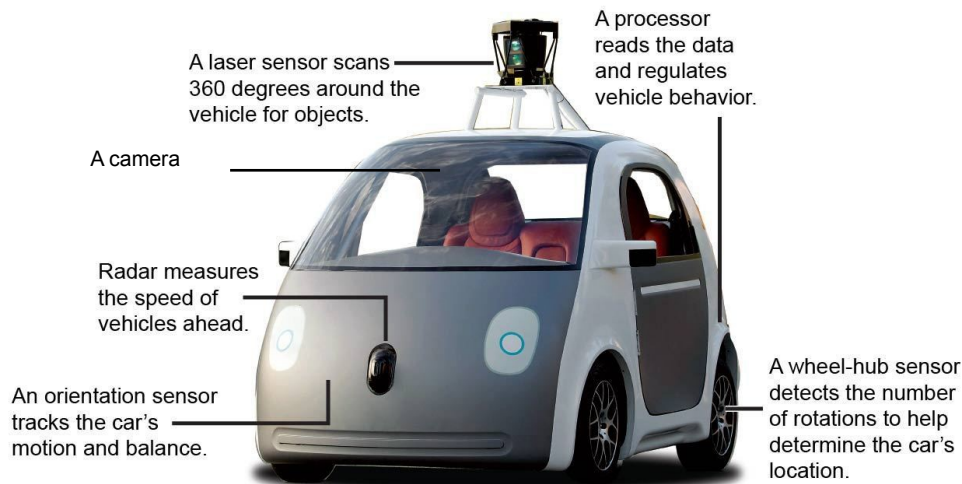
Durée de l'épreuve : 40 minutes

- 20 minutes de préparation
- 10 minutes de présentation et 10 minutes d'échange avec le jury

Google's self-driving car

Watch the video and answer the questions: (duration: 1'20)

[Sujet 3.mp4](#)



Source: Google

Raoul Rañoa / @latimesgraphics

Laser sensor : The heart of Google's self driving car is the rotating roof top camera, LIDAR, which is a laser range finder. With its array of 64 lasers beams, this camera creates 3D images of objects helping the car see hazards along the way. This device calculates how far an object is from the moving vehicle based on the time it takes for the laser beams to hit the objects and come back. These high intensity lasers can calculate distance and create images for objects in an impressive 200m range.

A camera mounted on the windshield takes care of helping the car « see » objects right in front of it. These include the usual suspect- pedestrians, and other motorists. This camera also detects and records information about road signs and traffic lights, which is intelligently interpreted by the car's in built software.

4 radars enable the car to be aware of vehicles in front of it and behind it. The radar sensor on the car's bumpers keeps a « digital » eye on the car ahead. The software is programmed to maintain a distance of 2-4 seconds vis-a-vis the car ahead of it. So with this technology the car will automatically speed up or slow down depending on the behaviour of the car/ driver ahead.

<http://www.national.co.uk/>

Tasks:

1. Present and comment on the documents.
2. Explain how the LiDAR works knowing that it uses the principle of Doppler effect.
3. Illustrate the Doppler effect in our daily life.
4. Discuss to what extent you will take a ride in such a car that has no steering wheel, pedals, brakes nor accelerator.