Sensors are the hardware components your car uses to observe the world. By now, you are probably familiar with some of the most common types of autonomous vehicle sensors, such as:

**Cameras**

A picture containing grass, mirror, car mirror, reflection

Description automatically generated

**Lidar**

A picture containing text, electronics

Description automatically generated

But there are many other types of sensors used in autonomous vehicles. In the following exercise, test your knowledge of other types of sensors you might encounter. If you haven’t seen them before, here is more information about [IMU](https://en.wikipedia.org/wiki/Inertial_measurement_unit) and [Ultrasonic sensors](https://en.wikipedia.org/wiki/Parking_sensor).

It is more accurate to depict a connection of the camera to free space detection, as in the following figure.

Graphical user interface, diagram

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The major components of the planning subsystem components are route planning, prediction, behavioral planning, and path planning.

## Route planning

The route planning component is responsible for high-level decisions about the path of the vehicle between two points on a map; for example which roads, highways, or freeways to take. This component is similar to the route planning feature found on many smartphones or modern car navigation systems.

## Prediction

The prediction component estimates what actions other objects might take in the future. For example, if another vehicle were identified, the prediction component would estimate its future trajectory.

## Behavioral planning

The behavioral planning component determines what behavior the vehicle should exhibit at any point in time. For example stopping at a traffic light or intersection, changing lanes, accelerating, or making a left turn onto a new street are all maneuvers that may be issued by this component.

## Trajectory planning

Based on the desired immediate behavior, the trajectory planning component will determine which trajectory is best for executing this behavior.

Have a look at the quizzes below to test your knowledge of the planning subsystem:

Diagram

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