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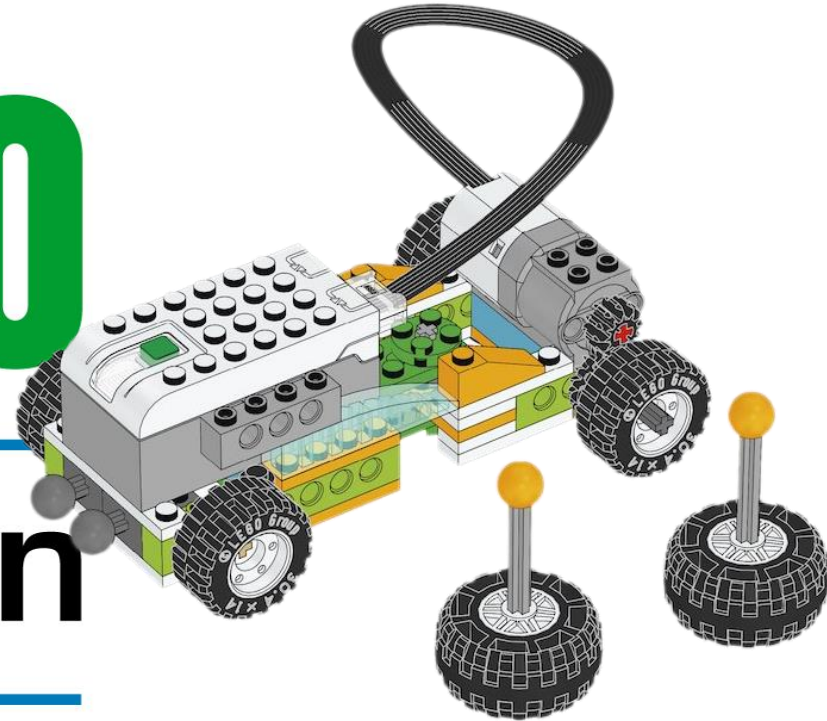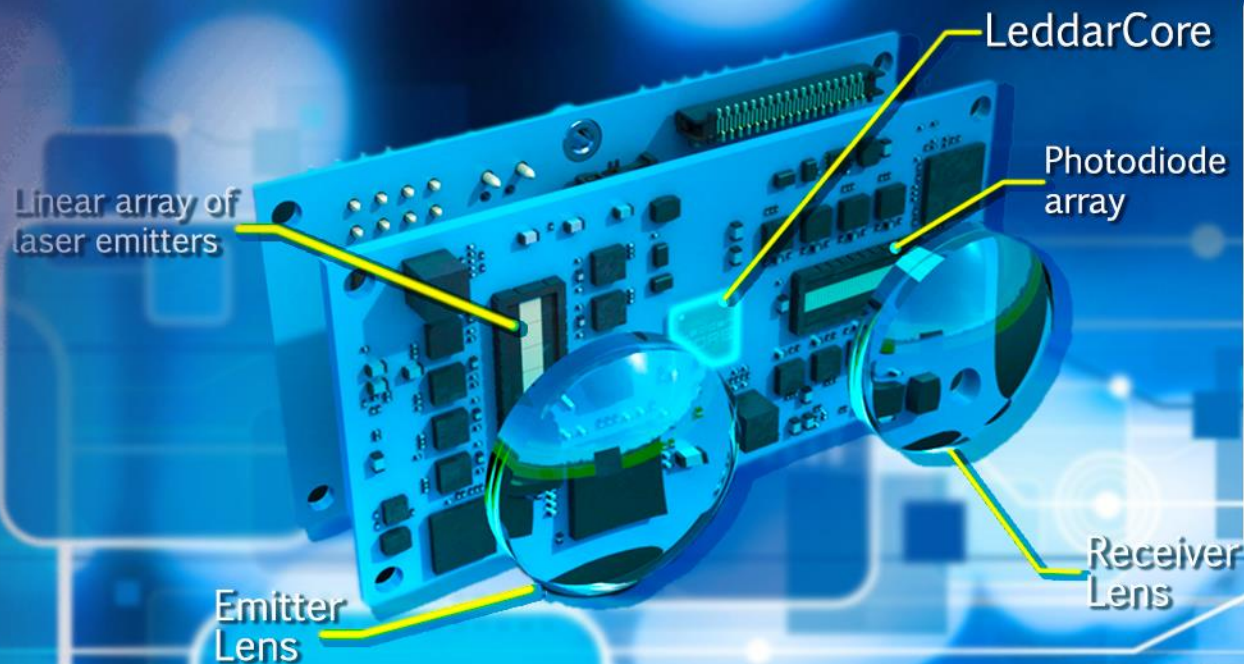### FasTracKids & JEI Learning Center

WeDo 2.0
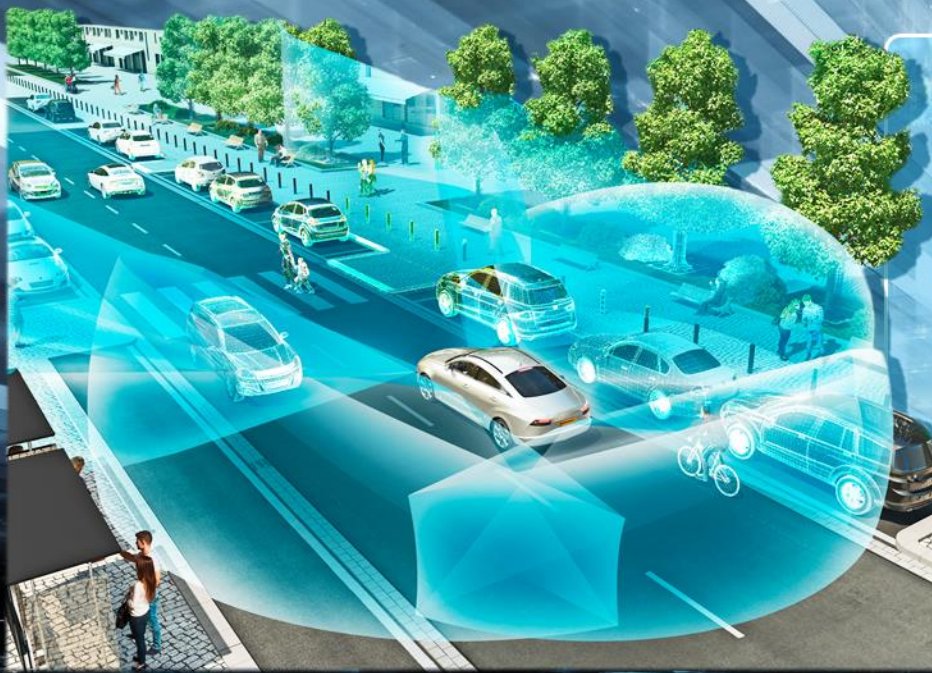
LEGO education

Lesson: Steering & Sensor Car

Several lessons ago we learned about the beginnings of the modern vehicle. Now we are going to learn all about (self driving cars)! Yes, they do exist! Although, we will learn that there are still some kinks that this technology needs to work out.

Linear array of laser emitters

LeddarCore

Photodiode array

Emitter Lens

Receiver Lens

This is the technoloy behind the self driving car. It has some artificial intelligence technology. This means that a very special computer is able to make some driving decisions on it's own without a human controlling it.

The self driving car's computer brain also has a pair of computer lens that act as eyes for it to see what is directly in front of it so that it is able to make decisions when driving.
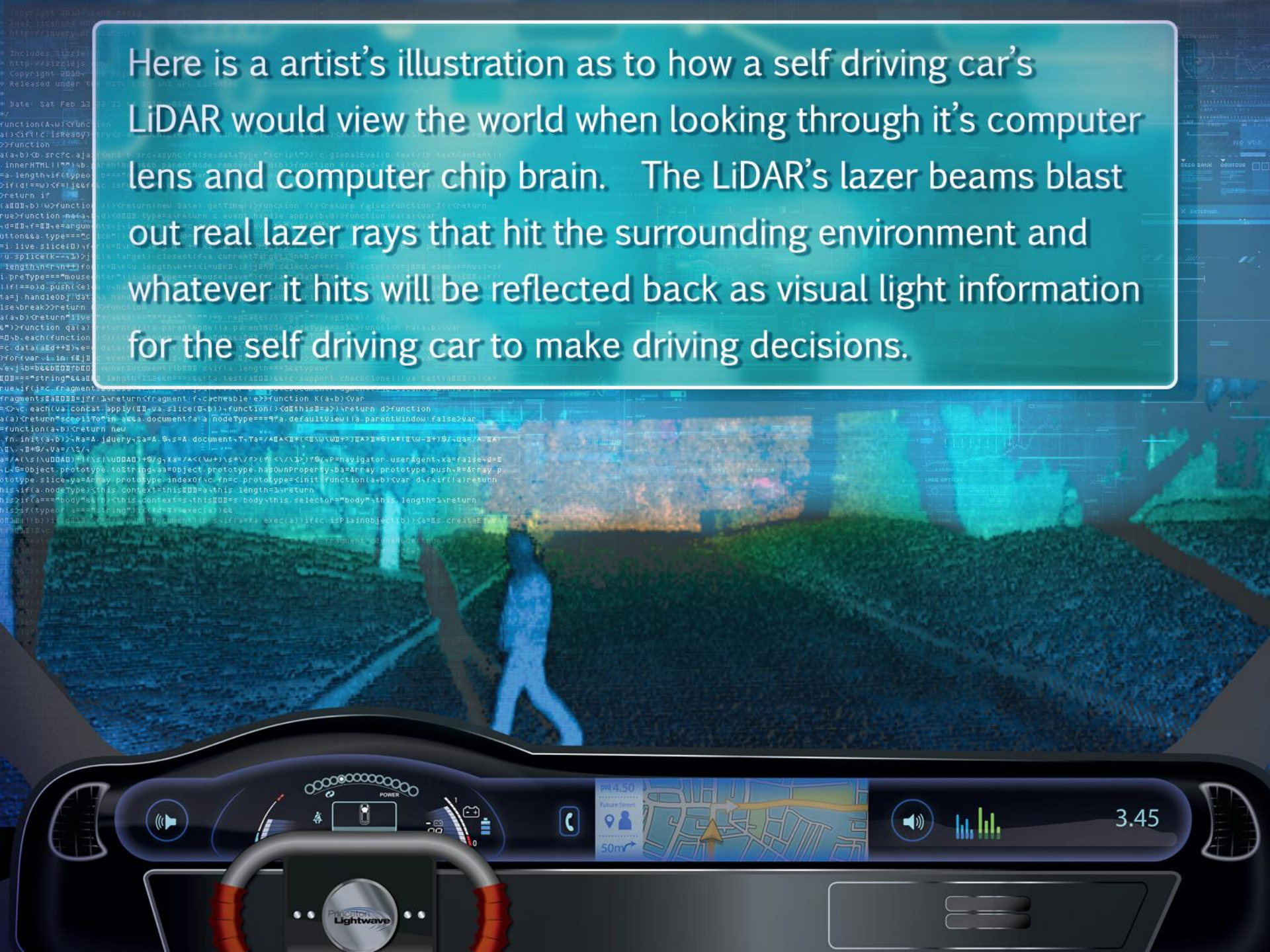
Here are some illustrations as to how self driving cars are able to see all around them. They have what is called L.I.D.A.R technology.
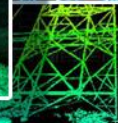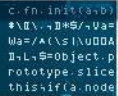
LiDAR is an acronym of: Light Detection and Ranging

LiDAR works in a similar way to Radar and Sonar yet uses light waves from a laser, instead of radio or sound waves.

Here is a artist's illustration as to how a self driving car's LiDAR would view the world when looking through it's computer lens and computer chip brain.   The LiDAR's lazer beams blast out real lazer rays that hit the surrounding environment and whatever it hits will be reflected back as visual light information for the self driving car to make driving decisions.

Here are some more examples of LiDAR technology that were fitted onto helicopters and cars. As you can see, it allows for you or a artifical intelligence computer, to see very well.

Now let's watch a YouTube video about self driving cars! It's pretty interesting stuff!

https://www.youtube.com/watch?v=6k9gb2elXvo

Unfortunately, there have been several accidents and even deaths that happened because of self driving cars. Self driving cars offically began in 2013. Since then there has been four deaths and about a dozen accidents per year.

Here are some of the major car manufacturing companies that are working on self driving cars. Pretty much every company is working on their own self driving cars these days!

This is the WeDo 2.0 Sensor! Do you know what a sensor is or does? Well, let's think about how you are able to see, or hear or feel everything around you.

Your eyes, ears, and the skin covering your entire body are all special sensors that help you to think and react to the world around you.

So bascially this LEGO sensor helps the LEGO robot or car or whatever machine you create... to see and react to the world around it! It literall is the LEGO robot's eyes to see! Very cool stuff right!

Now Let's Build
Our Own Lego Sensor Car!