4 STEPS TO

Create a Truck Rollover Prevention System

According to the Federal Motor Carrier Safety Administration, truck rollovers are the first harmful event in five percent of all fatal crashes involving large trucks. These rollovers are frequently caused by trucks taking curves at unsafe speeds, often on freeway on- or off-ramps.

A contributing factor to this is that drivers may not be aware of the severity of the curve and of what is an appropriate and safe speed for the large truck they are driving. Even though speed limits are usually posted on such a curve, drivers may not notice or pay attention to these signs.

The solution? A truck rollover prevention system, which will warn individual trucks that are travelling at unsafe speeds for the approaching curve. Read on to learn how to create such a system using the Wavetronix SmartSensor HD.

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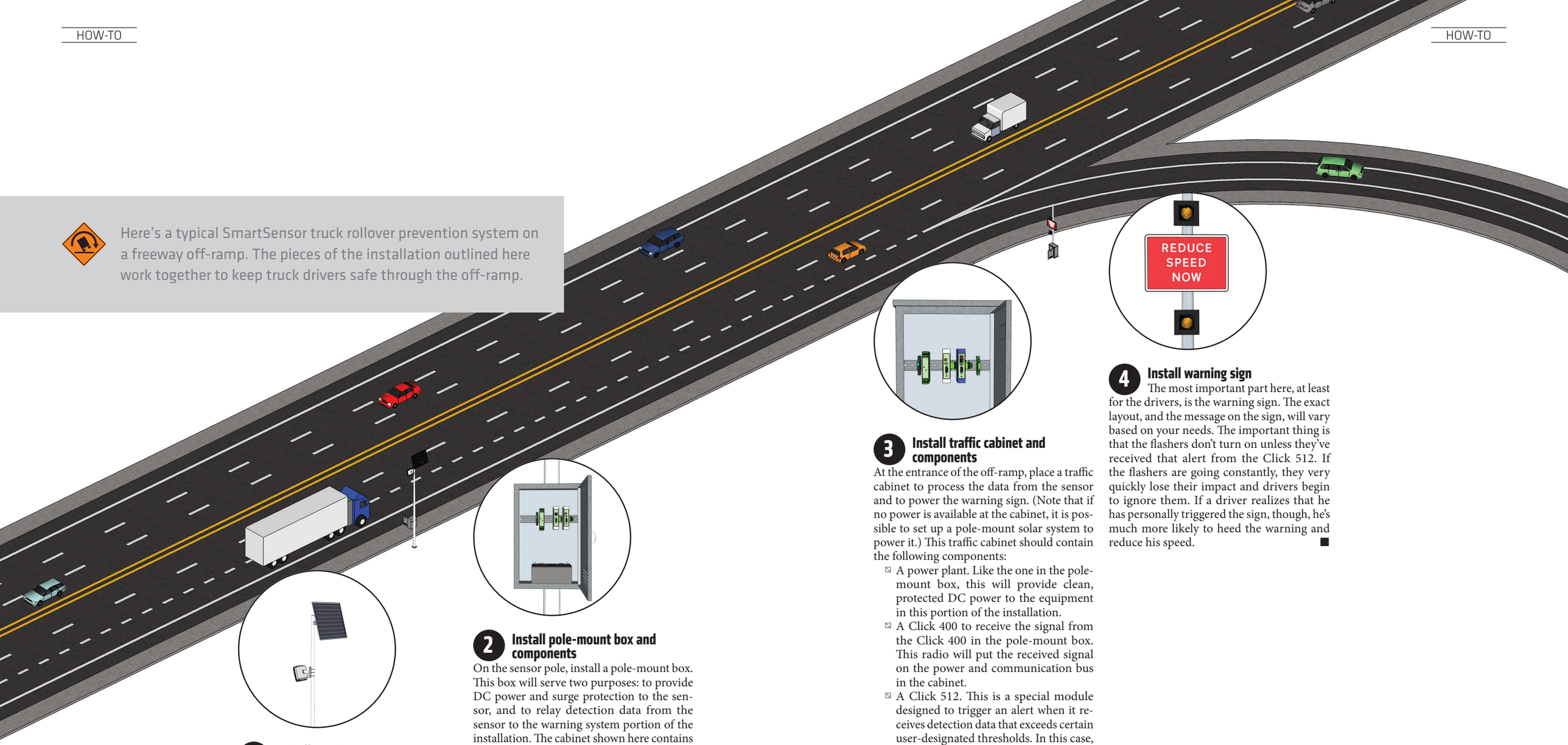
HOW-TO

Here's a typical SmartSensor truck rollover prevention system on a freeway off-ramp. The pieces of the installation outlined here work together to keep truck drivers safe through the off-ramp.



1 Install SmartSensor HD

At least 350 feet before the turn in question, install a SmartSensor HD. This detector monitors up to 22 lanes of traffic across a 250-ft. range; it detects highly accurate speeds and forwards that information to a programmable controller that filters all the detections according to the length and speed of the vehicle. It can detect when trucks of a certain size, currently in an exit lane, are travelling at unsafe speeds.

For a fully self-contained installation, you can power this sensor with a solar panel, shown here; doing this means you don't have to run power out to the sensor installation.

2 Install pole-mount box and components

On the sensor pole, install a pole-mount box. This box will serve two purposes: to provide DC power and surge protection to the sensor, and to relay detection data from the sensor to the warning system portion of the installation. The cabinet shown here contains these components:

- A battery, for storing power from the solar panels.
- A power plant, with Click modules for using power from the battery/solar panels to safely power the sensor.
- The Click 200 surge protector. This module provides a place to quickly and easily terminate the sensor cable. This cable performs two vital functions: getting power to the sensor, and receiving detection data from the sensor. Terminating it into the Click 200 protects the sensor against surges coming from the pole-mount box.
- The Click 400, a radio that transmits detection data from the sensor to the warning system part of the installation. Using this module means you don't have to trench any communication cables.

3 Install traffic cabinet and components

At the entrance of the off-ramp, place a traffic cabinet to process the data from the sensor and to power the warning sign. (Note that if no power is available at the cabinet, it is possible to set up a pole-mount solar system to power it.) This traffic cabinet should contain the following components:

- A power plant. Like the one in the pole-mount box, this will provide clean, protected DC power to the equipment in this portion of the installation.
- A Click 400 to receive the signal from the Click 400 in the pole-mount box. This radio will put the received signal on the power and communication bus in the cabinet.
- A Click 512. This is a special module designed to trigger an alert when it receives detection data that exceeds certain user-designated thresholds. In this case, you would configure it to trigger an alert when a vehicle is detected as being in the exit lane, exceeding the size threshold that marks it as a large truck, and exceeding the speed that you've designated as the upper limit for safety on this particular curve. When it detects a vehicle that fits these criteria, it will trigger a contact closure alert.
- A relay, to relay said contact closure alert to the warning sign.

4 Install warning sign

The most important part here, at least for the drivers, is the warning sign. The exact layout, and the message on the sign, will vary based on your needs. The important thing is that the flashers don't turn on unless they've received that alert from the Click 512. If the flashers are going constantly, they very quickly lose their impact and drivers begin to ignore them. If a driver realizes that he has personally triggered the sign, though, he's much more likely to heed the warning and reduce his speed. ■