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Anti-Collision Device for Buses Is Tested in Washington, DC, and Other Cities

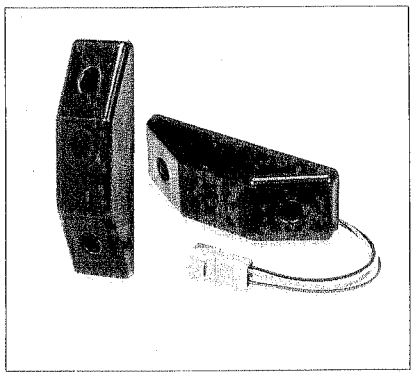
Sensors Detect Objects in Blind Spots on Sides of Buses

The Washington Metropolitan Area Transit Authority (WMATA) is joining transit systems in Baltimore, Cleveland, and Salt Lake City in testing a new technology designed to help bus drivers avoid collisions. On February 6, WMATA announced that an ultrasonic detection system, called Seymor, has been installed on 50 of its Metro buses. Manufactured by New York-based Clever Devices, Ltd., the system is designed to help bus drivers avoid cars, bicycles, and other objects in their foremost blind spots: along the sides of buses.

Six sensors, which are attached to the sides of buses, emit high-frequency sound waves. The waves bounce off large "hard" objects, such as cars, bicycles, or lampposts, and echo back to the bus. If an object gets close to the bus, amber-colored warning lights are activated on the dashboard and an alarm sounds, alerting the driver of danger.

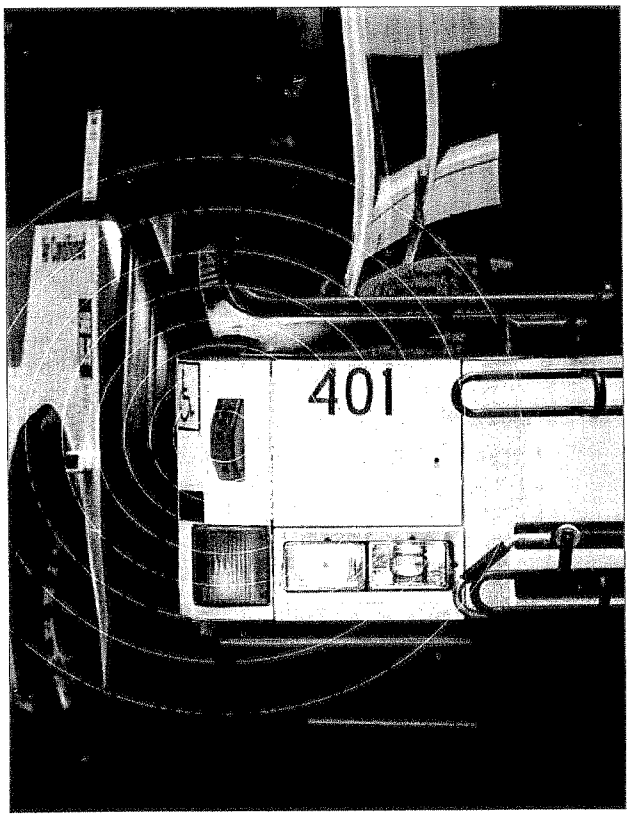
Although the system often detects pedestrians, Clever Devices cautions that the system should not be relied on to do so. People are considered "soft" objects and tend to absorb sound energy. A sound wave bouncing off a person may not produce a detectable echo. It is envisaged that this technology will be very helpful in the urban traffic of downtown areas.

At the conclusion of Metro's pilot program in January 2008 a decision will be made on whether to retrofit the entire bus fleet or to order the Seymor technology for new bus purchases only. WMATA estimates the installation cost for Seymor to be about $3,000 per Metro bus.



Anti-collition sensors. (Photo: Courtesy of Clever Devices)

According to Clever Devices, the cost of Seymor for transit systems is often lower than $3,000 per bus and depends upon the amount of bus-driver training needed in addition to the purchase and installation of the product. Moreover, the sensors have a high rate of return on investment. Kris Weeks, Clever Devices product specialist for Seymor, said studies show that the sensors pay for themselves in 10.6 months through reduced bus incidents.



An anti-collision sensor on a bus. (Photo: Courtesy of Clever Devices)

Weeks and Steve Bennett, Clever Devices executive vice president for sales and marketing, said that the Seymor technology has four basic operating modes. The first mode is when the bus is stopped. The second mode is for close maneuvering, when a bus is traveling up to 15 miles per hour. In these "urban slow" modes of operation, a warning light on the bus's dashboard flashes slowly if an object, such as a car, comes within four feet of the bus. If the object comes within three feet, the light flashes more rapidly, and if the object is within two feet, the light gives a continuous warning and an alarm tone sounds.

At faster urban speeds, Seymor's remaining operating modes become an aid for changing lanes. When the bus is traveling 15 to 45 miles per hour, the technology becomes active when the bus's turn signal is on. The sensors on the side of the bus in the turning or merging direction are in operation, and the range of the sensors is six feet. If an object is detected within the sensing range, the light gives a continuous warning and an alarm sounds. At highway speeds faster than 45 miles per hour, the detection range of the sensors is increased to eight feet.

Asked how long the technology for Seymor has existed, Weeks explained that Seymor was developed as a result of studies done by a consortium under the U.S.

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DOT's Intelligent Vehicles Initiative (IVI). The Pennsylvania DOT was part of the consortium. The mission of the IVI is to prevent highway crashes and the fatalities and injuries they cause.

Weeks said that an IVI Needs Assessment report produced in 1999 found the accident rate for buses to be exceptionally high compared to other forms of transportation. Carnegie Mellon University (CMU) participated in the assessment and was asked to look at the state of the technology for mitigating traffic accidents. CMU identified the best existing technology to be sensor technology used primarily on large trucks as an alert system for avoiding collisions when backing up. Subsequently, the Port Authority of Allegheny County in Pittsburgh, PA, issued an RFP to explore the use of such technology for buses. The results of these tests, Weeks said, led to early versions of Seymor.

The redesign of technology for Seymor started in 2001, Weeks said. Clever Devices worked with the Port Authority of Allegheny County to revise the product, and then tested the technology for effectiveness on buses in Pittsburgh.

Clever Designs started selling Seymor to transit authorities in late 2004. Pilot studies are now underway in Baltimore, MD; Cleveland, OH; and Salt Lake City, UT. Weeks noted that WMATA had five buses outfitted with Seymor for a year and a half before deciding to install the technology on 50 additional buses. He said that many transit authorities add technology to their fleets incrementally.

Over 300 bus operators were trained to use the sensor technology in Pittsburgh, and they were all asked if they wanted it installed on their buses. More than 80% of the drivers said "Yes." The drivers knew that the technology helped them, Weeks said. They clearly recognized the technology's benefits.

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