The Maxell Group's CSV Business Management

Maxell × SDGs

CSV Example 1

Contributing to elimination of traffic accidents

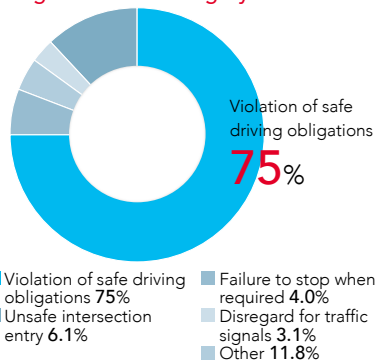
Support for safe driving

Augmented Reality Head-Up Display

Research and Development ▸ Commercialization ▸ Business Development

Violations of safe driving obligations include failure to confirm safety, distracted driving, inability to recognize behavior of other drivers, and careless driving. Such breaches of duty are incredibly dangerous and have the potential to result in a serious accident. The Maxell Group seeks to eliminate deaths from traffic accidents by providing products that reduce the burden placed on drivers.

Breakdown of Traffic Accidents by Legal Violation Category



- Violation of safe driving obligations 75%
- Unsafe intersection entry 6.1%
- Failure to stop when required 4.0%
- Disregard for traffic signals 3.1%
- Other 11.8%

* Chart prepared by Maxell Holdings, Ltd., with reference to 2018 statistics on road traffic (number of traffic accidents involving drivers of small scooters or larger vehicles by legal violation type) released by the Traffic Bureau of the National Police Agency

Support Safe Driving Using Image Display Technologies

When driving at high speeds, changes in lines of sight can result in serious accidents. To reduce the risk of such accidents, Maxell is moving ahead with the development of an augmented reality head-up display (AR-HUD), which displays the information necessary for driving on the windshield of a vehicle in order to minimize changes in lines of sight. We look to commercialize this product in 2020.

In conjunction with the AR-HUD development project, we are moving forward with the development of safety functions that leverage the characteristics of the AR-HUD, including the ability to overlay information on top of the actual view on the front of a vehicle, to support drivers. These functions will include displaying navigation information on destinations, speeds, and other factors as well as alerts on oncoming traffic or pedestrians when detected.

Providing drivers with the information necessary for safe driving requires the ability to accurately acquire such information from both inside and outside of vehicles. Furthermore, the threat of overlooking a danger sign increases at nighttime due to factors such as the lower volume of traffic in comparison with the daytime as well as the higher tendency for careless driving as a result of fatigue from work or other causes. Since the start of the AR-HUD development project, Maxell has been focusing on the development of sensing technologies that contribute to increased visibility at night. In addition, the AR-HUD currently under development employs a camera that can measure the height of the driver's line of sight to automatically adjust the height of information displays. Looking ahead, we intend to introduce functions that use cameras to acquire information from the entire face of the driver to detect drivers along with condition monitoring functions that use information from the eyes of drivers to help avoid dangers arising from poor health conditions or falling asleep at the wheel.

A More Compact AR-HUD and Progress toward Commercialization

The AR-HUD is a product meant to be installed in the small space between the steering wheel and the windshield of automobiles. Through studies on rival products that have been in development longer than ours, we have learned that the equipment needing to be installed is often very large, presenting an obstacle to introduction. Moreover, the addition of AR functions is expected to make this equipment even larger, which would mean that the design of automobiles would need to be changed in order to accommodate the equipment. Maxell, meanwhile, boasts an ultra-short throw optical technology that allows projectors to display images on large screens even with short projection distances. By applying this technology to our AR-HUD, we succeeded in developing a system that can display images on a large screen from a long distance and that is more compact, realizing a size feasible for installation in automobiles.

The field of view offered to drivers when we began development of our AR-HUD was initially quite narrow, only 1.4 degrees vertically and 5–6 degrees horizontally. In fiscal year 2017, we succeeded in developing an AR-HUD with a field of view that is roughly five times the size of the previous system—4 degrees vertically and 10 degrees horizontally—receiving high evaluation from original equipment manufacturers (OEMs).

Goal of Acquiring Share of the Chinese Market

Maxell has proceeded to solicit the value of its AR-HUD to various OEMs in China at exhibitions such as the Shanghai International Automobile Industry Exhibition. In 2025, demand for AR-HUD is expected to grow to 10 million units in the Chinese market. Maxell is aggressively taking part in business negotiations with Chinese OEMs and other potential customers with the aim of establishing operations in this market. China is engaged in an aggressive nationwide drive to develop next-generation automobiles. Given this fact as well, we anticipate that demand for AR-HUD will grow going forward.

Looking ahead, we plan to first launch our AR-HUD product in the Chinese market and then deploy it in Japan, Europe, and other markets worldwide.

Maxell booth at Auto Shanghai 2019—The 18th International Automobile Industry Exhibition held in April 2019