An app for operating a self-driving car

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Self-driving car phone that has voice recognition application on its Smartphone. If you want to drive a self-driving car, please say 'start.' Credit: The Electronics and Telecommunications Research Institute(ETRI)

The Electronics and Telecommunications Research Institute (ETRI) and IT Engineering, a Korean electric vehicle producer, have jointly developed a smartphone software package for calling and moving a self-driving car with voice recognition.

Based on the levels from 0 to 5 suggested by the US automobile technology association, the autonomous driving technology tested here was being level 3 (eyes off) and level 4 (mind off), according to ETRI.
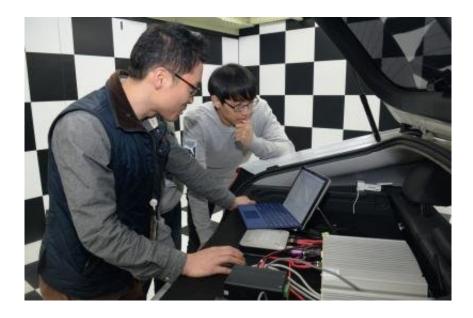
The newly developed technology enables a self-driving car to automatically produce and update a precise map to apprehend the environment surrounding the road. The map has an error range of less than 10 centimeters, which is outstanding in world standard.

The key technology uses sensors to recognize the surrounding environment on the road, creating and updating precision maps. Rather than ordinary maps, automated driving requires "precision maps" that include traffic lights, boundary stones, landmarks, and other parts of the driving environment. It is crucial that this information is updated in as close to real time as possible.

The researchers also stated the significance of the electricity consumption rate by the self-driving car. Existing self-driving cars require hundreds of watts of electricity due to the large amount consumed in the sensor and AI algorithm operation processes. Thus, most testing has been conducted with midsize or larger sedans or sport utility vehicles (SUVs).

By integrating its AI algorithms, ETRI has lowered consumption to below 100W—the equivalent of two notebook computers—allowing for automated driving by compact electric cars. ETRI is currently improving the software's algorithms in order to achieve a higher level of self-driving by applying deep learning. The institute is planning to share big data related to its research process with autonomous driving researchers and developers.

ETRI researchers are working on it. Credit: The Electronics and Telecommunications Research Institute(ETRI)

Provided by National Research Council of Science & Technology

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