

Summary of SIP-ADUS project (FY2015)

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| Name of the project | Development of Local Traffic CO2 Emission Visualization Technology |
| Responsible Organization | Automobile Division, List of Officials of Manufacturing Industries Bureau, METI Pacific Consultants Co., Ltd. |
| Name | Daisuke Oshima |
| Object of the Project | <p>Because CO2 emissions from the transportation sector accounted for approximately 17 percent of total CO2 emissions in Japan in 2013 and most of the CO2 emissions is generated from road transport, further reduction of CO2 emissions from road transport is required. In such a situation, Automated Driving System raise exception for contribution to reduce energy consumption and CO2 emissions from vehicular highway traffic. This project establishes Local Traffic CO2 Emission Visualization Technology which can estimate CO2 emission reduction effect by Automated Driving System quantitatively to promote popularization of the system.</p> |
| Project Summary | <p>Local Traffic CO2 Emission Visualization Technology will be developed by combination of a traffic simulation and a CO2 emission model in accordance with the international joint report "Guidelines for assessing the effects of ITS on CO2 emissions" published under international cooperation between Japan, Europe and the U.S. in 2013 as a result of Energy ITS project by NEDO. In this project, six automated driving systems: "green wave run for signalized arterial corridors", "Advanced Rapid Transit (ART) by automated buses", "truck platooning on expressways", "automated driving on expressways", "last one mile transport by automated vehicles", "automated valet parking" were targeted for the evaluation.</p> <p>At first, the mechanism that affect CO2 emissions by introduction of the automated driving systems was examined as a correlation diagram. Then, various data required for the evaluation and the requirements to the model were arranged from the viewpoint of traffic simulation and CO2 emission model based on the diagram. Furthermore, a model to evaluate "Advanced Rapid Transit (ART) by automated buses" and "truck platooning on expressways" was constructed.</p> <p>The impact of traffic accidents on travel speed of surrounding roads was analyzed by using accident statistical data and probe data in Tokyo 23 wards to examine the influence on CO2 emissions with the reduction of traffic accidents that is one of the main prospective effects by the introduction of the automated driving systems.</p> <p>This project was carried out through opinions exchanges with experts from Europe and the U.S.</p> |
| Future plan | <ul style="list-style-type: none">•Data collection and modelling for the evaluation of the impact of the automated driving systems on traffic flow and CO2 emissions•Detailed analysis of the impact of traffic accidents on traffic flow and development of a method to evaluate CO2 emission reduction effect by the reduction of traffic accidents•Evaluation of the CO2 emission reduction effect by introduction of the automated driving systems in a model city and verification of the evaluation results•Continuation of the international cooperation |