

論文内容要旨

報告番号	甲 先 第 302 号	氏 名	李 熙 珍
学位論文題目	STUDY OF SELF-DRIVING SYSTEM USING GNSS COORDINATE WITH POSITION CORRECTION ALGORITHM (GNSS 衛星測位座標位置補正アルゴリズムを用いた自律走行システム)		
<p>内容要旨</p> <p>Recently, the self-driving technology has been developed rapidly in Intelligent Technology (IT) and automotive industries. Platooning driving system is a category of self-driving. Platooning means series driving which more than two vehicles are aligned in one line as a group.</p> <p>In this study, two types of simple and low-cost self-driving systems are proposed. The systems are constructed without cameras or image processing. Two types of vehicles are controlled automatically with tracking to the destination coordinate or preceding vehicle. One vehicle is a compact vehicle which is available to boarding maximum 2 passengers. The other one vehicle is small-scale vehicle which is controlled by radio controller, originally. In order to improve stability and reliability of positioning, several position correction algorithms are proposed to the system.</p> <p>In addition, to ensure safety of the self-driving, obstacle detection and collision prevent stop function is implemented with several sensors. System algorithm, implementation and evaluation method are described in detail. Several experimental and simulation results using developed vehicles demonstrate the validity of the proposed system and correction method.</p> <p>As a result, the proposed single mode self-driving system implemented in the compact vehicle performed successfully for approaching to several fixed way points and destination point. The proposed platooning self-driving system implemented in the follower vehicle performed successfully for tracking to moving preceding vehicle. Furthermore, according to the results of simulations, the positioning accuracy and precision has improved by correction algorithms which are based on the neural network, satellite ephemeris, vehicle dynamics and weighted averaging by multi GNSS module. Although the remaining absolute position error of the GNSS data, the measurement accuracy of multi GNSS weighted averaging and the relative distance between the vehicles were improved.</p>			