

先端科学技術研究科 修士論文要旨

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要旨			
<p>Indoor navigation means the flexible guidance of people in confusing and unknown buildings. Currently, visual Simultaneous Localization and Mapping (SLAM) based Augmented Reality (AR) navigation is becoming more and more attractive. AR navigation can provide a new experience for pedestrians compared to the conventional navigation techniques. However, the point cloud map generated by SLAM doesn't include the semantic information of the environment and it cannot provide the navigation guidance to users directly. In this thesis, I propose a hybrid grid map management method for AR navigation with visual SLAM, which consists of 3D grid map and 2D grid map. The system can get a walkable area that could safe-to-follow and help minimize collisions with the obstacles during navigation. Path planning on walkable area helps the user to get the destination fast. In experiments, I build an AR navigation application with the proposed hybrid grid map on mobile devices which can assist the user to find their destination efficiently. The result of the experiment shows the feasibility of hybrid grid map management in AR navigation task.</p>			