

ABSTRACT

METHOD AND SYSTEM FOR TRAJECTORY ANALYSIS BY COMBINING SFM WITH PDR BASED ON BIM MODEL

The present disclosure provides a method and a system for trajectory analysis by combining structure from motion (SFM) with pedestrian dead reckoning (PDR) based on a building information modeling (BIM) model. The method includes the following steps: establishing connection to a panoramic camera and an inertial measurement unit (imu) sensor module through WiFi and Bluetooth in a terminal; shooting a panoramic video by using the panoramic camera and processing the panoramic video into a panoramic photo; generating an SFM trajectory by using an SFM method; calculating and generating a complete PDR motion trajectory by using a PDR algorithm based on data acquired by the imu sensor; fusing and correcting the SFM trajectory and the PDR motion trajectory, and matching the fused trajectory with the BIM model; and uploading matched position and attitude to a cloud database as a piece of data. The method can accurately locate the trajectory and attitude of the collected panoramic photo in a building or indoor space, and analyze the construction process. Meanwhile, through matching with the BIM model, the method can provide more visual and accurate trajectory visualization results and comparison with the BIM model.

Fig 1