

Abstract

Telkom University has a large area and many high-rise buildings and there are many spaces with different functions. Based on the search and data collection of the Telkom University academic community, 8 out of 10 students have found it difficult to find the location of a room in a particular building. This happens because of the lack of use of information in the form of a signpost, the name of the room is less clearly visible and the GPS signal is less accurate when used indoors. So it is necessary to have a system that provides information and navigation of places on campus, especially in buildings.

This final project aims to create a campus navigation system indoors for the Telkom University Faculty of Applied Sciences School building. In designing a navigation system in space, a system created using BLE Beacon technology as a device that can provide signals in the room so that it can be reached by smartphone devices. The method used in making navigation to identify locations in the room is by estimating the position of the user by calculating the distance of the user with the signal transmitter and the position of the transmitter coordinates which is called the trilateration method [1]. The development of this system also utilizes Augmented Reality technology to provide visualization of directions in the screen which are the catches of the device's camera so that the indoor navigation system that is created will display markers in the form of virtually 2D objects. The method used is part of Markerless Augmented Reality, namely GPS Based Tracking, a method that can recognize objects based on location. To recognize locations as markers, the system was built using Wikitude as an Augmented Reality library that utilizes geolocation technology so that information can be displayed in the form of navigation to the position of the room in the form of virtual objects on the smartphone screen.

Keyword: Navigation, Augmented Reality, Beacon, Trilateration