Keynote Speaker

New Trend of LED Position Detection for Indoor Applications

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Abstract

Position detection technologies are widely used such as autonomous robot, self-driving, automatic guided vehicles, etc. GPS (Global Positioning System) position measurement is a typical method for position detection, but it is difficult for indoor applications. There are a lot of methods for indoor position detection, for example, magnetic induction method, position detection learning system, and optical position detection system. The magnetic induction method is convenient but needs cost for repairing and route changing. The position detection learning system needs high performance computer and position detection accuracy is low. The optical position detection system has high detection accuracy but it is difficult for optical setting. In addition, the cost of transmitter and receiver becomes expensive for wide area. A new approach of optical position detection system is introduced that using the ceiling LED (Light Emitting Diode) lights and a PSD (Position Sensitive Detector). The general LED lights are sine-waved with different frequencies and the two-dimensional PSD detects the position of LED lights of different frequencies. Using the information of different LED lights, the position of the PSD can be measured. It has high detection accuracy and easy for route changing. Some examples are concerned for indoor applications.