Detection Of Users Of A Passenger Transport System

The invention pertains to a passenger transport system with a device for registering users, as well as to a method for registering users of this passenger transport system with a corresponding device.

Passenger transport systems such as elevators, escalators and moving walkways particularly are used in urban areas in order to direct and maintain the dynamic of passenger flows. Due to the global population growth and the increasing concentration in urban areas, the number of users of a passenger transport system to be transported per time unit also increases accordingly, particularly in public buildings such as railway stations, airports and subway stations.

Since the number of users being transported also represents the measure for the wear of expendable parts such as guide rollers, sliding elements, supporting elements, drive components and the like, a service date can be calculated based on a registration of user numbers with consideration of empirical values. With respect to heavily used passenger transport systems, it may furthermore be advantageous to register the number of users located on the passenger transport system for safety reasons in order to initiate corresponding safety measures in case of an overload.

Consequently, there is a need for equipping passenger transport systems with a device for registering users. A passenger transport system of this type is known, for example, from JP 2011 011901 A. In this passenger transport system, the entering and exiting users are registered by means of light barriers arranged on both access areas of the escalator and the instantaneous load on the step band is calculated from the difference. Although four light barriers are installed per access area for reasons of redundancy, the device is unable to register whether only one person enters the access area or two persons enter the access area adjacent to one another.

Another device for registering users is known from WO 2015/090764 A1. In this case, the device has the function of monitoring a pre-entry area of an escalator by means of a TOF sensor (time-of-flight camera). As soon as a user enters this pre-entry area, the motion pattern of the user is analyzed and the drive of the transport band is controlled in