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jc660 U.S. PTO

PATENT

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ATTENTION: APPLICATION BRANCH

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s): **ROBERT F. GAZDZINSKI**

For: **"SMART" ELEVATOR SYSTEM AND METHOD**

Enclosed are:

- (X) 24 sheet(s) of drawings.
- (X) A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27.
- (X) Declaration by inventor(s).
- (X) Return prepaid postcard.

CLAIMS AS FILED

FOR	NUMBER FILED	NUMBER EXTRA	RATE	FEE
Basic Fee			\$380	\$380
Total Claims	40 - 20 =	20 ×	\$11	\$220
Independent Claims	6 - 3 =	3 ×	\$40	\$120
If application contains any multiple dependent claims(s), then add			\$130	\$0
TOTAL FILING FEE				\$720

- (x) A check in the amount of \$720 to cover the filing fee is enclosed.

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Registration No. 39,990
Attorney of Record

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL-ENTITY STATUS

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I am an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office with regard to the invention described in the patent or application identified above.

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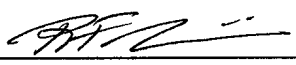
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NAME OF PERSON SIGNING: Robert F. Gazdzinski
TITLE OF PERSON (if not an owner or individual):
ADDRESS OF PERSON SIGNING: 5862 D Mission Center Road, San Diego, CA 92123

SIGNATURE: 

DATE: 6/10/99

ENTITY

602730-70702260

“SMART” ELEVATOR SYSTEM AND METHODBackground of the Invention

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1. Field of the Invention

The present invention relates to the field of personnel transport apparatus, and specifically to elevators and similar devices for transporting people from one location to another which incorporate various information technologies.

2. Description of Related Technology

Elevators and similar personnel transport devices (such as moving walkways or shuttles) are important aspects of modern urban life. Commonly used in office buildings, airports, shopping malls, and other large structures, these devices transport large numbers of people and equipment between two locations on a routine basis. Elevators in particular are widely used throughout the world.

Depending on loading, a person may spend up to several minutes on an elevator during travel between floors. Significant amounts of time may also be spent waiting for the elevator to arrive when called. This time is usually “dead” from the standpoint that very little can be accomplished or very few tasks undertaken during these few minutes. However, often times an individual may require information which will be of use after leaving the elevator. For example, the person may wish to obtain travel information such as directions to the nearest airport or public transportation node, or the location of a nearby restaurant. Weather-related information or traffic reports may also be useful. A plethora of different types of information, including financial data, breaking news headlines, sports scores and the like may also be of interest to one waiting for or riding on an elevator or other transport device.

An associated problem relates to determining the location of a person, firm, or store within a building when unfamiliar. Building directories are often posted in the lobby of the building, yet these require the user to manually or visually locate the name of the person, firm, or store which

they are looking for, and remember the location information associated therewith. Additionally, such directories often do not provide precise location information, but rather merely a floor number and/or suite number. The user often times does not have a graphical representation of the desired location in relation to the elevators, thereby resulting in additional wasted time in finding the location once off of the elevator. Even if a graphical display is provided, it often requires the user to spatially orient themselves to determine relative location.

Security is also a concern when riding elevators late at night or to remote locations. Many elevator systems are used partly or entirely within parking garages, which often may be sparsely populated at off hours. People are all too frequently assaulted or robbed when departing from elevators under such conditions. Unfortunately, existing elevator systems do not have the facility to provide the occupant(s) with the ability to selectively observe the area immediately surrounding the elevator doors on one or more destination floors, or otherwise take precautions to enhance their security.

Another problem associated with existing elevator systems relates to their loading capacity. Often, especially at peak use hours such as during the noon hour, the call buttons for several different floors within a building will be activated, and elevator cars which are at or near their loading capacity will respond. With no additional room available in the elevator, the person depressing the call button on a given floor is left to wait for the elevator doors to close, depress the call button again, and wait for another (hopefully partially vacant) car to arrive. This process not only delays the person waiting for the car, but also those on the elevator car(s), and those waiting on other floors.

In addition to the foregoing, many elevators must have a means of restricting access to certain floors during certain time periods while not interfering with other operations. These elevators generally also include means by which certain users may gain access to the restricted floors, such as a magnetic striped card which is inserted into a card reader on the elevator. However, such card readers are prone to wear and having to re-swipe the card several times in order to obtain access. Furthermore, as the card wears due to repeated swiping or bending (such as when left in the pocket of the individual carrying the card), the card will be more prone to failure and will eventually require replacement. Also, such cards are prone to unauthorized use. Someone stealing or finding the lost card can simply insert it into the card reader of the elevator and gain access to the restricted

5 floor(s). It is also noted that since access is restricted to certain floors typically during late-night or weekend hours, HVAC and lighting systems are typically turned off or dormant in order to conserve energy. Hence, when the user arrives at one of these restricted access floors, several minutes are typically spent turning on the HVAC, lights, and any other number of electrical devices. Some systems require the user to insert their magnetic strip card in a separate reader, such as in the control room for the HVAC (which is typically located on a different floor), in order to initiate equipment operation. This is obviously time consuming and cumbersome.

10 Lastly, there is often an element of discomfort associated with riding an elevator car, especially when several individuals are present in the car. Due in part to minimal space within the car and nothing to occupy the occupants attention visually, there is a natural tendency for one to stare up, down, or forward at the door of the elevator, or at the visual floor indicators so as to avoid prolonged eye contact with the other occupants.

5 Heretofore, many of the technologies necessary to address the aforementioned issues have not been available or, alternatively, have been cost or space prohibitive to implement. However, recent advances in data networking, thin or flat panel display technology, personal electronics, and speech recognition and compression algorithms and processing have enhanced the viability of such features from both technological and commercial perspectives.

20 Based on the foregoing, there is a need for an improved elevator system and method of operation which will reduce the time spent waiting for and travelling on the elevator car, reduce the frustration associated with repeated stops at different floors, and allow the occupants of the elevator (as well as those waiting for the car) to use their time more efficiently and obtain needed information. Additionally, such an elevator system would enhance the security of the occupants upon egress, and allow for automatic recognition of an individual in order to provide access to certain restricted locations and initiation of certain functions such as lighting and HVAC.

25 **2. Summary of the Invention**

The present invention satisfies the aforementioned needs by providing an improved elevator information and control system and method of operating the same

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