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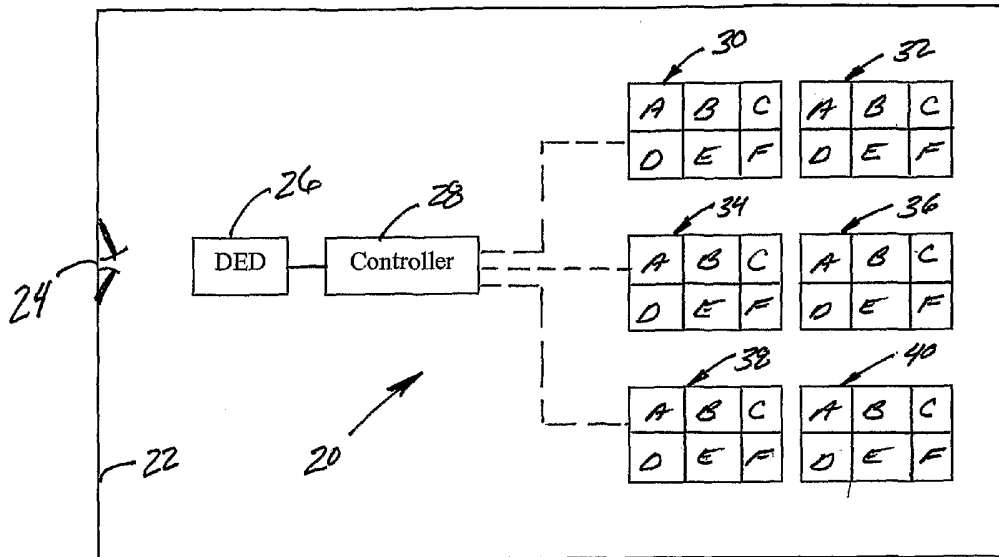
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(54) Title: DIRECTIONAL AUDIBLE PROMPTING FOR A DESTINATION DISPATCHING ELEVATOR SYSTEM



(57) Abstract: An elevator system (20) utilizes a destination dispatching technique. A destination entry device (26) includes a passenger interface (50) that facilitates interaction between a visually impaired passenger and the elevator system. In a disclosed example, the passenger interface (50) includes an input portion (54) that allows an individual to enter their desired destination. An output portion (58) includes the ability to provide an audible indication of directions for proceeding from the passenger interface to an assigned elevator car. Example instructions include direction and distance information for proceeding to the assigned elevator car.

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DIRECTIONAL AUDIBLE PROMPTING FOR A DESTINATION DISPATCHING ELEVATOR SYSTEM

1. Field of the Invention

5 This invention generally relates to elevator systems. More particularly, this invention relates to directing passengers to elevator cars in a destination dispatching system.

2. Description of the Related Art

10 Elevator systems are in widespread use throughout the world. Various system configurations and strategies are known for controlling passenger traffic and efficiently operating an elevator system.

 Traditionally, hall call buttons allowed passengers to place a call to go up or down within a building and then to select a destination floor from a car operating panel located within an elevator car. While such arrangements are useful for many situations, elevator systems within larger buildings that handle more traffic volume have been shown to benefit from other control techniques. One example technique is known as destination dispatching.

 In a destination dispatching system a passenger provides her desired destination using a destination entry device outside of an elevator car. A controller then uses known techniques for assigning that passenger's travel to a particular elevator car. The destination entry device typically is located a fixed distance from the location of the elevator car. Various techniques for directing passengers to the appropriate car are known. Most destination dispatching systems provide visual feedback to an individual regarding the car assignment that is made responsive to their destination entry.

 One situation where known destination dispatching systems have shortcomings is when a visually impaired individual has to enter their desired destination, receive feedback from the system on the assigned car and then proceed to the car assigned to travel to the desired destination. With traditional elevator systems, a visually impaired individual may be able to memorize a walking pattern, for example, through a building lobby to an appropriate elevator car and then to use the

car operating panel in a traditional manner to arrive at their desired destination. With destination dispatching systems, that option is typically not available as car assignments typically vary with time. A significant challenge is presented to a visually impaired individual who is not familiar with a particular building and whose car assignment may change from day-to-day, which makes arriving at the car assigned to their request potentially difficult.

One approach to this problem has been to provide an audible voice or tone prompt indicating the assigned elevator car to be dispatched responsive to a destination entry. Some proposed systems include a device that provides an audible indication in the elevator opening area within a hallway or lobby, for example, to indicate that this area is the proper position for a passenger to wait for the elevator car. Other arrangements include providing an audible device above each hoistway door opening to provide such confirmation. A shortcoming associated with these approaches includes the additional cost associated with installing the sound-producing devices near each hoistway entrance and at each floor where destination entry is possible. It is desirable to provide service to visually impaired passengers without the added costs associated with such systems.

This invention provides an improved arrangement for directing passengers requiring assistance beyond a visual indication of an assigned car or elevator group. This invention improves the operation and usability of a destination dispatching elevator system.

SUMMARY OF THE INVENTION

An exemplary disclosed passenger interface that is useful in a destination dispatching elevator system includes an input portion that allows an individual to enter a desired destination while outside of an elevator car. An output portion provides audible instructions including direction and distance information for proceeding from the interface to the elevator car that is assigned to travel to the desired destination.

In one example, the distance information is communicated in at least one of meters, feet or a number of paces.

A disclosed method of directing individuals to assigned elevator cars in a destination dispatching system comprises providing audible instructions including direction and distance information for proceeding from a destination entry device to an assigned elevator car.

5 The various features and advantages of this invention will become apparent to those skilled in the art from the following detailed description. The drawings that accompany the detailed description can be briefly described as follows.

BRIEF DESCRIPTION OF THE DRAWINGS

10 Figure 1 schematically illustrates selected portions of an elevator system designed according to an embodiment of this invention.

 Figure 2 schematically illustrates an example passenger interface useful with the embodiment of Figure 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

15 Figure 1 schematically shows selected portions of an elevator system 20 within a building 22. Individuals may enter the building through a doorway 24, for example. A destination entry device 26 allows individuals to enter a desired destination (i.e., a floor number) to which they desire to be carried by the elevator system 20. In one example, the destination entry device 26 is a kiosk-style fixture in a building lobby.

 A controller 28 receives information from the destination entry device 26 and uses known techniques for assigning the received request to a particular elevator car within the system 20. In the illustrated example, a plurality of elevator groups 30-40 each include a plurality of cars A-F. The controller 28 uses known techniques for determining which car will be assigned to a given destination request. The controller 28 then prompts the destination entry device 26 to provide feedback to the individual indicating at least the elevator group to which their request has been assigned.

 In one example, the destination entry device 26 provides visual feedback to an individual regarding at least the elevator group to which their request has been assigned. In another example, the destination entry device 26 also provides an indication of the specific elevator car within that group.

Figure 2 shows one example passenger interface 50 of a destination entry device 26. In this example, a display 52 provides visual information to individuals accessing the elevator system 20. One example includes a liquid crystal display. The display 52 may provide instructions for using the destination entry device 26 or the passenger interface 50, for example. The display 52 also may be used to provide an indication of an assigned elevator group, the assigned car, an indication of how to proceed to the assigned elevator group or car or a combination of these.

An input portion 54 of the passenger interface 50 in this example includes a numeric keypad that allows individual's to enter floor numbers corresponding to their desired destination. This example is configured to provide tactile feedback regarding what each key represents. The example input portion 54 also includes a handicap access input 56, which in one example comprises a key. In one example, use of the handicap access input 56 prompts the controller 28 to provide feedback to the individual more than just on the display 52.

In the illustrated example, a speaker portion 58 provides audible feedback to an individual that facilitates use of the passenger interface 50 and the elevator system 20.

In one example, audible indications are provided to the individual regarding the assigned elevator group, the assigned car within that group and instructions for proceeding to the assigned car. In one example, the instructions provide directional information and distance information to guide an individual to the appropriate elevator car. Example directional information includes an indication regarding proceeding to the right or the left. Example distance information includes the number of meters, feet, paces or a combination of these so that the individual knows how far to expect to proceed to arrive at the appropriate elevator car.

In one example, the passenger interface 50 includes memory that stores a plurality of audio files containing the instructions corresponding to proceeding to the various elevator cars. Upon assigning the appropriate car to the desired destination, the controller 28 prompts the passenger interface 50 to play the corresponding audio file to provide the audible feedback to guide the individual to the appropriate car. In another example, the controller 28 includes the memory containing such audio files.

In one example, an audible confirmation is provided upon arrival of an assigned car once the elevator car doors open so that an individual is confident that they are entering the appropriate car and will be carried to their desired destination. In one example, the audible confirmation also includes an indication of the destinations to be serviced by that car. One example system includes a speaker within the elevator car that generates the audible confirmation such as, "Car 30A has arrived, please enter," for example.

The disclosed arrangement provides enhanced accessibility and improved operation of a destination dispatching elevator system. Visually impaired passengers are able to successfully and confidently use a destination entry device having a passenger interface like that described above.

The preceding description is exemplary rather than limiting in nature. Variations and modifications to the disclosed examples may become apparent to those skilled in the art that do not necessarily depart from the essence of this invention. The scope of legal protection given to this invention can only be determined by studying the following claims.

CLAIMS

We claim:

1. A passenger interface device that is useful in an elevator system, comprising:
an input portion that allows an individual to enter a desired destination when
5 the individual is outside of an elevator car; and
an output portion that provides an audible indication of instructions including
direction information and distance information for proceeding from the passenger
interface to an elevator car assigned to travel to the desired destination.
- 10 2. The device of claim 1, wherein the distance information is communicated in at
least one of meters, feet or paces.
3. The device of claim 1, wherein the audible indication comprises a prerecorded
voice speaking the instructions.
- 15 4. The device of claim 1, wherein the output portion provides an audible
indication of the assigned elevator car.
5. The device of claim 1, wherein the output portion includes a speaker that
20 provides the audible indication.
6. The device of claim 1, wherein the input portion includes a handicap input that
allows an individual to indicate that they require the audible indication from the
output portion.
- 25 7. The device of claim 1, including a memory associated with the passenger
interface that includes audio files containing instructions corresponding to proceeding
to an assigned car.
- 30 8. The device of claim 7, including a controller that communicates with the
interface, assigns an elevator car to travel to the desired destination and provides an
indication to the interface for playing the corresponding file.

9. A method of servicing at least one passenger using destination dispatching in an elevator system that includes a passenger interface device that allows an individual to enter a desired destination while outside of an elevator car, comprising:
- 5 providing audible instructions including direction information and distance information for proceeding from the passenger interface to an elevator car that is assigned to travel to a desired destination.
10. The method of claim 9, including providing the distance information in terms of at least one of meters, feet or paces.
11. The method of claim 9, including providing an audible indication regarding an elevator car assigned to travel to the desired destination.
- 15 12. The method of claim 9, including determining a desired destination responsive to passenger input;
- assigning an elevator car to travel to the desired destination; and
- playing an audio file corresponding to instructions for proceeding to the assigned elevator car.
- 20 13. The method of claim 9, including providing an audible confirmation when an assigned elevator car arrives to carry the individual to the desired destination.
14. The method of claim 13, wherein the audible confirmation includes at least
- 25 one of an indication of the assigned elevator car or the desired destination.
15. The method of claim 13, including providing the audible confirmation upon opening a door of the assigned elevator car.

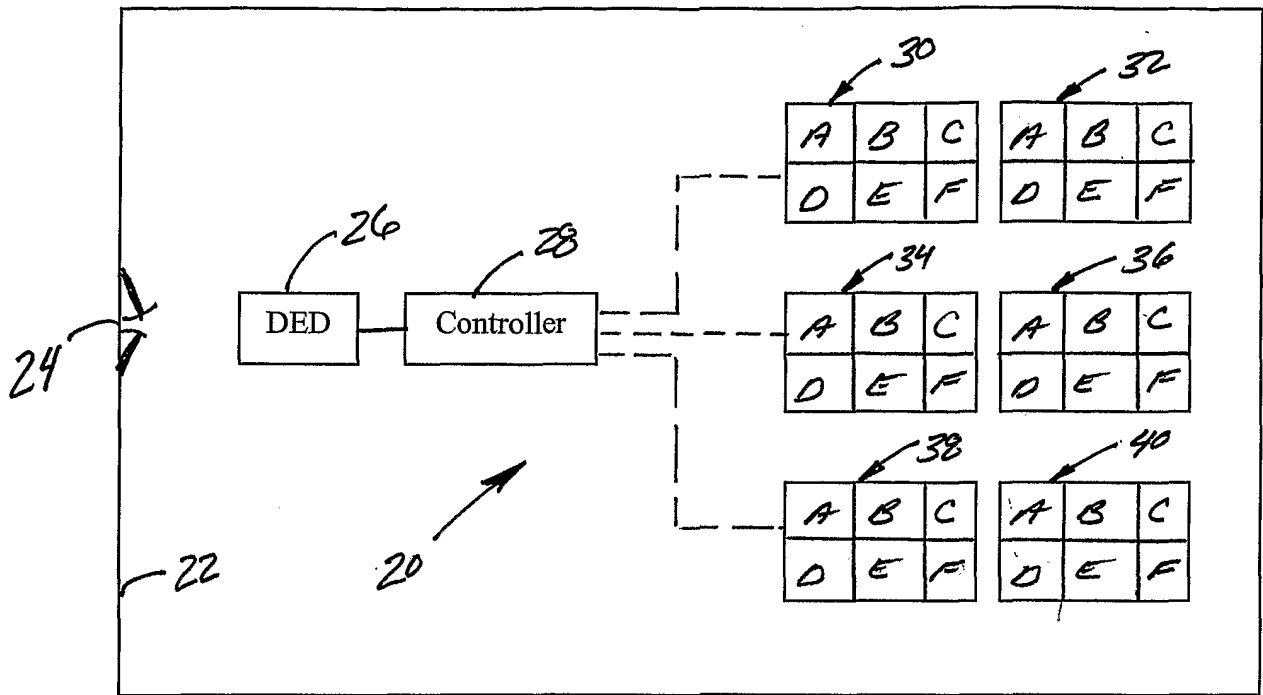


Fig 1

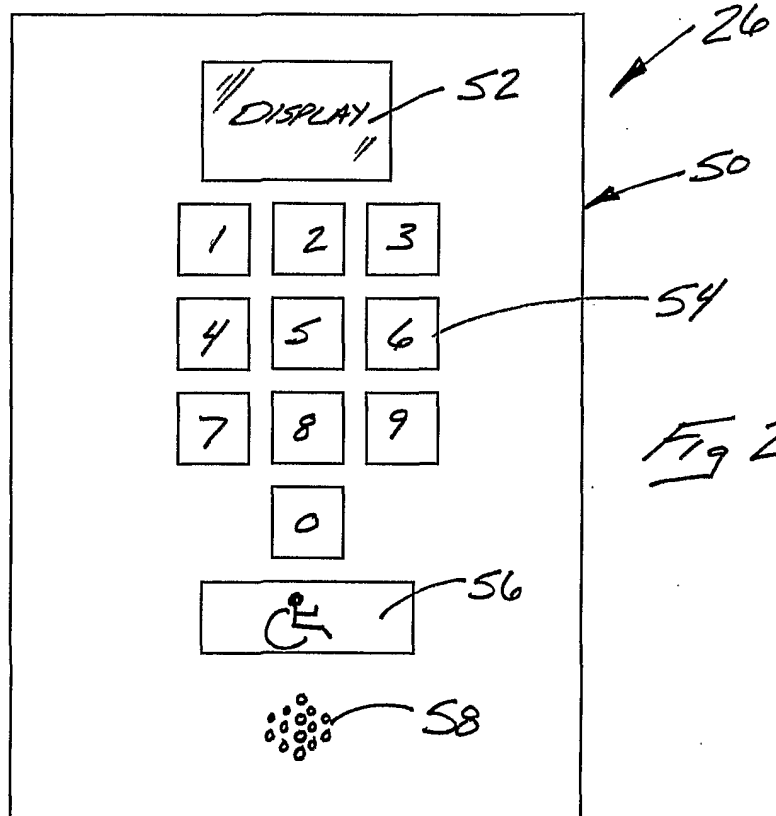


Fig 2