

SYSTEM AND METHOD FOR AUTONOMOUS MOBILE ROBOT TO RIDE AND CO-SHARE ELEVATOR WITH HUMAN(S)

ABSTRACT OF THE DISCLOSURE

A system and a method for an autonomous mobile robot (AMR) to ride and co-share an elevator with human(s) are disclosure. The core software modules and method proposed include a human detection and localization module, a human identification and state estimation module, a human-robot-interaction module, and an elevator confined space positioning module. The AMR with the system and the method allow the key functions of surrounding recognition of panel identification, button activation, door status, elevator moving status (by sensors such as camera, LiDAR, pressure sensor, barometers, IMU); determining the waiting/standby position, the space occupation and clearance, and in/out path; and interacting with human(s) for safety and convey intended motion. These features and functions enable the AMR to perform the necessary steps to ride an elevator under normal conditions and realize the human interaction and exceptional handling. It facilitates the AMR to use elevators without any modification of elevator.

FIG. 1