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HMI Assignment-01

Problem Statement:- Hidden Controls: Getting the elevator to go to your floor.

Many modern elevators are controlled by computer. The computer's job is to process all of the relevant information about the elevator & turn the motor the current amount to put the elevator where it needs to be. In order to do this, the computer needs to know at least three things.

- Where people want to go.
- Where each floor is.
- Where the elevator is.

Finding out where people want to go is very easy. The buttons in the elevator and the buttons on each floor are all wired to computer. When you press one of these buttons, the computer logs the request.

There are lots of ways to figure out where the elevator is. In one common system, a light sensor or magnetic sensor on the side of elevator reads a series of holes on a long vertical tape in the shaft. By counting the holes speeding by, the computer know exactly where the elevator is in shaft. The computer varies the motor speed so that the car ~~shoor~~ slows down gradually as it reaches each floor. This keeps ride smooth for the passengers.

In a building with many floors, the computer has to have some sort of strategy to keep the cars running as efficiently as possible. In older systems, the strategy is to avoid reversing the elevator's direction. That is, an elevator will keep moving up as long as there are people on the floors above that want to go up. The elevator will only answer "down calls" after it has taken care of all the "up calls". But once it starts down, it wont pickup anybody who wants to go up until

there are no more down calls on lower floors. This program does a pretty good job of getting everybody to their floor as fast as possible, but it is highly inflexible.

More advanced programs takes passengers traffic patterns into account. They know which floor have the highest demand, at what time of day & direct the elevators accordlingly. In a multiple elevator system, the elevator will direct other individual cars based on the location of other elevators. In one cutting-edge system, the elevator lobby works like a train station. Instead of simply pressing up or down, people waiting for an elevator can enter a request for specific floor. Based on the location & course of all the elevators, the computer tells the passenger which elevator will get them to their destination the fastest.

Most system also have a load sensor in the elevator floor. The load sensor tells the computer how full the elevator is. If the elevator is near capacity, the computer won't make any more pickup stops untill some people have gotten off. Load sensors are also a good safety feature. If the elevator is overloaded, the computer will not close the door untill some of the weight is removed.