FINGER PRINT BASED AUTO LIFT FOR AUTHORIZED PERSONS

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ABSTRACT

The elevator designed for authorized persons can restrict the unauthorized entry in to a highly secured place.The authorized persons have to prove their identity through finger print scanner, if it matches with previous data stored in the processor, and then the elevator door will be opened automatically.

The demo module is constructed with a Module of elevator Mechanism, which moves vertically between the fixed reference points.

As this elevator box is constructed with sliding type of door mechanism, it will be opened for authorized persons. The mechanical movements are created through DC motors. The vertical movements are restricted through limit switches. The finger print scanner used here can accept the finger print data of authorized users.

Initially the data collected from the users will be stored in to the processor, later while decoding the user's data, the controller interfaced with the scanner can display the user's identity through LCD. The scenario presented in this project work is the basic concept of any biometric system mandatory; therefore finger print authentication system is designed for identifying the authorized persons.

Keywords: lift, elevator, arduino uno, , authorization, dc motor.

I.   INTRODUCTION

To overcome the difficulties faced in manual lifts, and to eliminate human interface with components, development of automatic lifts has evoked the markets. It provides many advantages for humans to commute. Automatic lifts work on a basic principle of a motor controlling the door of the lifts to open and close. Many safety factors are the purpose for the design of the controller. Along with these factors, the reliability and accessibility criteria are also taken into account while designing. The lift door controller receives many inputs and gives appropriate output to the mechanism for controlling the door. With many iterations of testing, the mechanism is designed and modified accordingly. The mechanical system of this mechanism needs to be optimized such that it can help to reduce the cost. Various motors are available in the market that fulfil the requirement but they lack in some characteristics like common DC motor don't have a high working torque, hence, a Permanent Magnet (PMSM) motor is selected. It has a low inertia, in built gear box to give high torque output and also attached with an encoder to give a feedback. Sensor such as Infrared sensors (Light Curtains) and position locating sensors (Proximity Switches) is used to ensure the safety purpose. A controller helps to connect all the sensors and motors together and sends command to each component to work with the desired output. Thus the complete assembly help the working of automatic doors of lifts.

II.   TECHNICAL DESCRIPTION

Microcontroller as the name suggest, a small controller. They are like single chip computers that are often embedded into other systems to function as processing/controlling unit. For example, the control you are using probably has microcontrollers inside that do decoding and other controlling functions. They are also used in automobiles, washing machines, microwaves oven toys, etc.

The arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button It contain severy thing needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

III.   RESULTS AND DISCUSSION

When the elevator circuit is switched on**.**The elevator circuit is ready to use and it's ready to scan the bio metrics.The elevator circuit enrolling the bio metrics given by the user.The elevator circuits compares the given input bio metrics with registered ones.

IV.   CONCLUSION

The proposed elevator controller based on biometrics offer greater reliability, security, and is more stable compared to the traditional biometrics recognition and verification techniques. Since FPGA has many advantages over microcontroller, to design this elevator controller is more cost-effective compared to microprocessor based controllers. We proposed this elevator controller in such a way that very few resourced required for developing this controller that makes it more efficient when compared to other controllers based on microcontrollers. For simulation FPGA Altera Nios II prototype board is used. The key contributions of the proposed work are minimal utilization of the available hardware resource, low processing time and low power consumption. In future by enhancing the quality of the vein fingerprint image we can reduce the errors and make system more reliable.

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