

# VOICE OPERATED LIFT USING SOLAR ENERGY

Prof. Rahul Dekate<sup>1</sup>, Prasanna Titarmare<sup>2</sup>, Ashish Polke<sup>3</sup>, Jitendra Gokhale<sup>4</sup>, Shubham Kokate<sup>5</sup>, Ankush Gupta<sup>6</sup>, Parag Chincholkar<sup>7</sup>, Pragati Bawane<sup>8</sup>

<sup>123</sup>Professor, Department of Electrical Engineering.  
Suryodaya College of Engg. & Technology, Nagpur, India  
<sup>45678</sup>UG Student, Department of Electrical Engineering.  
Suryodaya College of Engg. & Technology, Nagpur, India

## Abstract

*This paper presents the game plan and headway of voice worked lift/lift control structure. This framework goes presumably as human-machine correspondence structure. Talk insistence is the course toward seeing the conveyed words to make the major moves as prerequisites be. Client can besides control the electrical contraptions like fan, entryway, and so forth with the assistance of voice confirmation structure. To adjust up to this issue, input request can be given to the lift using voice. This resolves the issue for both more seasoned people, truly debilitate individual similarly as outwardly weakened people. Also at times where various people are using the lift, this plan moreover simplifies it for singular standing away from the data load up to give request. This gadget is useful for loss of development, minor height individuals and genuinely attempted people. The way that the construction will work on sunlight based force with the target that the expense of power is likewise saved. The light based force will lessen the general upkeep cost correspondingly as the running expense of the lift framework.*

Keywords: Voice operated lift, Microcontroller, Voice Module, RF Module.

## I. INTRODUCTION

Nowadays peach signals are the main methods for correspondence in individuals. Pretty much every discussion to communicate is finished by methods for voice signals. Sounds and different discourse signs can be changed over into electrical structure utilizing a receiver [2]. Voice acknowledgment is an innovation which is utilized to change over the discourse signals into a PC text design. This voice acknowledgment innovation can be utilized to control and produce discourse affirmation utilizing some outside worker. The primary point of this venture is to plan and build a voice worked lift/lift control framework [3]. This framework goes about as human-machine correspondence framework. Lift is become the principal part of our everyday life. Lift is become a vehicle gadget that is extremely basic to us now a days. We use it consistently to move merchandise or people groups vertically in a high structure like mall, working office, inn and a lot more things. Lift is an extremely helpful gadget that moves individuals in the briefest opportunity to wanted floor. Lift is the crucial piece of everybody's daily routine experiencing in enormous structures, and besides it is the fundamental thing in huge structures or any large development having number of floors to move starting with one story then onto the next [1]. Just as our optional point is to utilize sun-based energy for the working of the whole model, so it gets practical and because of which the general electric bill of an association or the client is decreased.

## II. WORKING

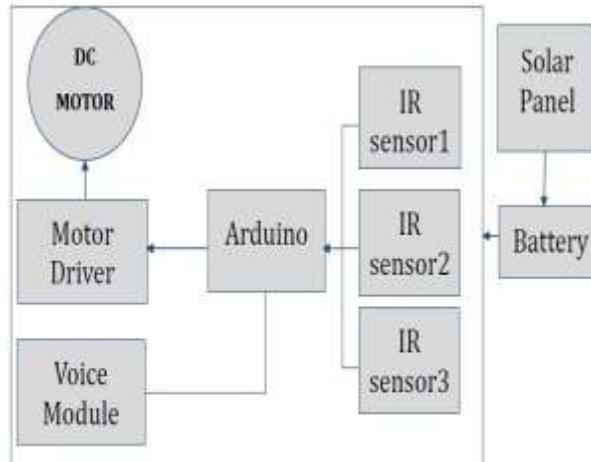


FIG 5.1 Block Diagram of Voice operated lift using solar energy

The live model is made using Arduino Atmega328 microcontroller, the floor are detected using IR sensor which sends single to controller. The programming is done in controller which detects the floor and drive the Dc geared motor to move the lift as per the floor selected the voice module is used to give voice single to controller. The voice module has the programme on which the floor to stop as per the voice single input. The hold system will run on battery a battery will change from solar panel.

### III. COMPONENTS

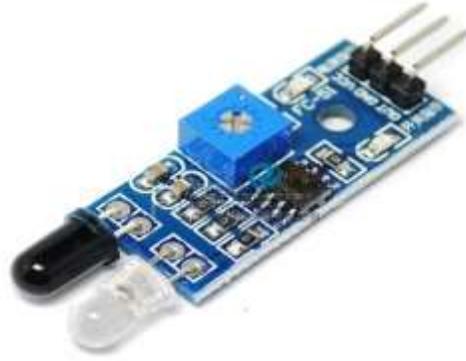
#### 1. Arduino nano

Arduino nano circuit board with Arduino IDE is capable of reading of analog or digital input signal from different sensors, activating the motor, turning LED on/off. Do many other such activities. All functionalities are performed by sending a set of instructions to the AT mega 328 main microcontroller, on the board via Arduino IDE. The Arduino board also includes Power USB, Power (Barrel Jack), voltage regulator, crystal oscillator, voltage pins (3.3 v, 5 v, Gnd, Vin), A0 to A5 analog pins, icsp pin, power led indicator, Tx and Rx led's, 14 digital input / output pins and Arduino reset. The Arduino is a microcontroller board, based on the ATmega328. The nano board functioning is different from all other boards in that it does not use the FTDI USB to serial driver chip.

Instead, the Atmega328 is programmed as a USB to serial converter. The AT mega 328 is a low power CMOS 8-bit micro controller based on the AVR enhanced RISC architecture structure common example of such devices intended for beginner hobbyists include simple robots, thermostats and motion detectors.

#### 2. IR SENSOR

IR rays continuously emitted from transmitter and any object will be reflected back through the receiver. There are three pins in IR SENSOR VCC, GROUND, Vout.



### 3. SOLAR ENERGY

Sun oriented energy is the main wellspring of energy for living things. It is a sustainable wellspring of energy, dissimilar to non-inexhaustible sources like petroleum products. Sunlight based energy alludes to energy from the sun-oriented energy is a totally free wellspring of energy sun-based energy has additionally utilization of photosynthesis, sun powered energy is changed over into substance energy by green plants, which makes the biomass that makes up petroleum products. Sun powered energy which contains brilliant warmth and light from the sun can be outfit with some advanced innovation like photovoltaic cells, sun-oriented warming, counterfeit photosynthesis, sunlight-based design and sun based warm power. The principal advantage of sun powered energy is that it doesn't deliver any poisons and is one of the cleanest wellsprings of energy. It is a sustainable wellspring of energy, requires low upkeep and is not difficult to introduce. the lone impediment that sun powered energy has is that it can't be utilized around evening time, and the measure of daylight that is gotten on earth relies upon area, season of day, season, and climate conditions sunlight-based innovation can be recognized into dynamic and detached. Photovoltaic boards and sun oriented warm authorities which bridle sun-based energy. Sunlight based energy can likewise be utilized for making saline water without utilizing power or synthetic substances.



### 4. SOLAR PANEL

Sunlight based energy starts with the sun. Sun oriented boards called "PV boards" are used to change light from the sun, which made of particles called "photons", into the power that can be used to control electrical burdens.

Sun oriented boards can be utilized for a wide assortment of utilization including distant force frameworks for lodges, broadcast communications hardware, far off detecting, and obviously for the creation of power by private and business sun based electric frameworks [6].

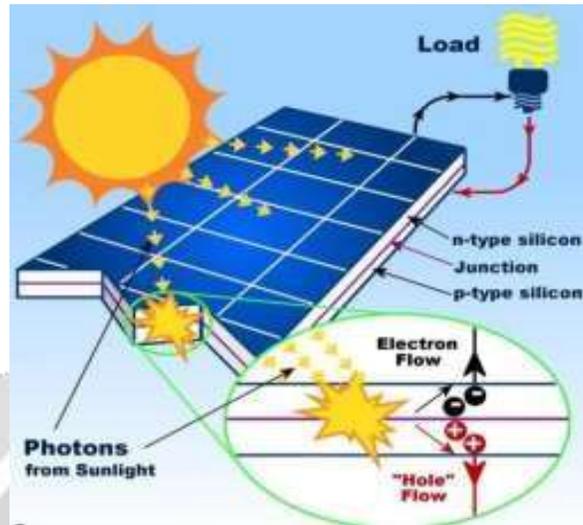


Fig.1

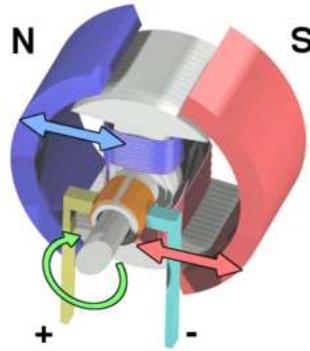
Sun based boards gather clean environmentally friendly power as daylight and convert that light into power which would then be able to be utilized to give capacity to electrical burdens. Sun oriented boards are contained a few individual sun-based cells which are themselves made out of layers of silicon, phosphorous (which gives the negative charge), and boron (which gives the positive charge). Sunlight based boards ingest the photons and in doing so start an electric flow [7]. The subsequent energy created from photons striking the outside of the sun-oriented board permits electrons to be taken out of their nuclear circles and delivered into the electric field produced by the sun powered cells which at that point manoeuvre these free electrons into a directional flow [8]. The cycle is called as Photovoltaic Effect. A normal home has a very sizable amount of rooftop zone for the vital number of sun-oriented boards to create sufficient sun-based power to supply the entirety of its force needs over abundance power produced goes onto the primary force lattice, paying off in power use around evening time.

### APPLICATIONS OF SOLAR ENERGY

A portion of the significant use of sun-based energy are as per the following: Solar water warming, Solar warming of structures, Solar refining, Solar siphoning, Solar drying of rural and creature items, Solar heaters, Solar cooking, Solar electric force age, Solar nuclear energy creation, Solar green houses.

### 5. DC MOTOR

An electric motor is an electric machine that converts electrical energy into mechanical energy most electric motors operates through the interaction between the motor's magnetic fields and electric current in a wire binding to generate force in the form of rotation of a shaft. Electric motors produced linear or rotary forced (torque) intended to propel some external mechanism, such as a fan or an elevator. an electric motor if generally design for continuous rotation, or for liner movement over a significant distance compared to its sized.



### Permanent magnet electric motor

The PM motor does not have a field winding on the stator frame, instead relying on PMs to provide the magnetic field against which the rotor filed interacts to produced torque. Compensating windings in series with the armature may be used on large motors to improve commutations under load because this filed is fixed, it cannot be adjusted for speed controlled.

### 6. Voice module

The voice recognition module is a compact and easy controlled speaking recognition board this product is a speaker dependent voice recognition module. It supports up to 80 voice commands in all maximum 7 voice commands could be registered at the same time. This board has to controlling waves serial (full function), general input pins (part of function).



### Parameters

Voltage: 4.5-5.5 v

Current: <40m A

Digital interface: 5 v

TTL Level UART interface

Analog interface: 3.5 mm mono-channel microphone connector + microphone pin interface

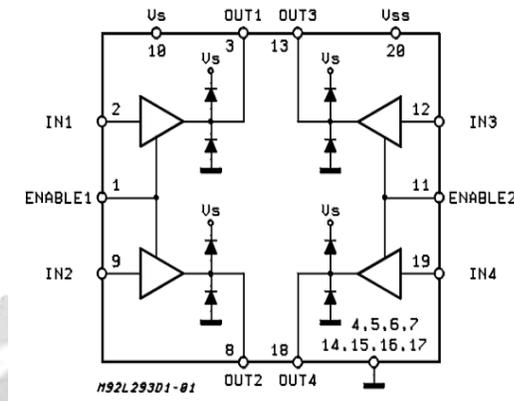
Size: 30mm x 47.5 mm

### 7. Photovoltaic cells

A solar cell coverts light energy into electrical energy. This conversion is based on the phenomena of photovoltaic effect. Sunlight consists of photons with different energy levels depending upon the spectrum from which they belong. When sunlight strikes the surface of the photovoltaic materials it ejects electrons

which results in the generation of electricity. This phenomenon is known as photovoltaic effects.

# L293D

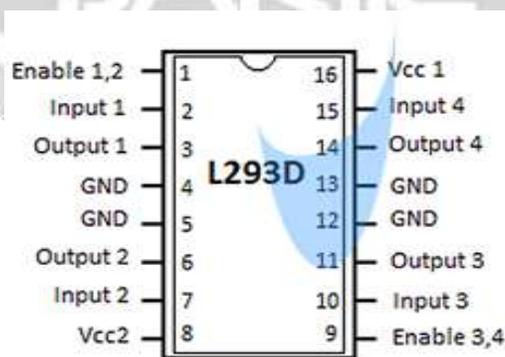


In theory, solar cells can convert about 30 percent of the incident solar radiation energy into electricity. Commercial cells today, depending on technology. Typically have an efficiency of 5-12 percent for thin films and 13-21 percent for crystalline silicon-based cells.

## 8. Motor Drive

The L293D is a popular 16-pin motor driver IC. As the name suggests it is mainly used to drive motors. A single L293D IC is capable of running two DC motors at the same time; also, the direction of these two motors can be controlled independently. The L293D is design to provide by directional drive currents of up to 600 mA (per channel) at voltage from 4.5 V to 36 V (at pin 8)

### PIN DIAGRAM

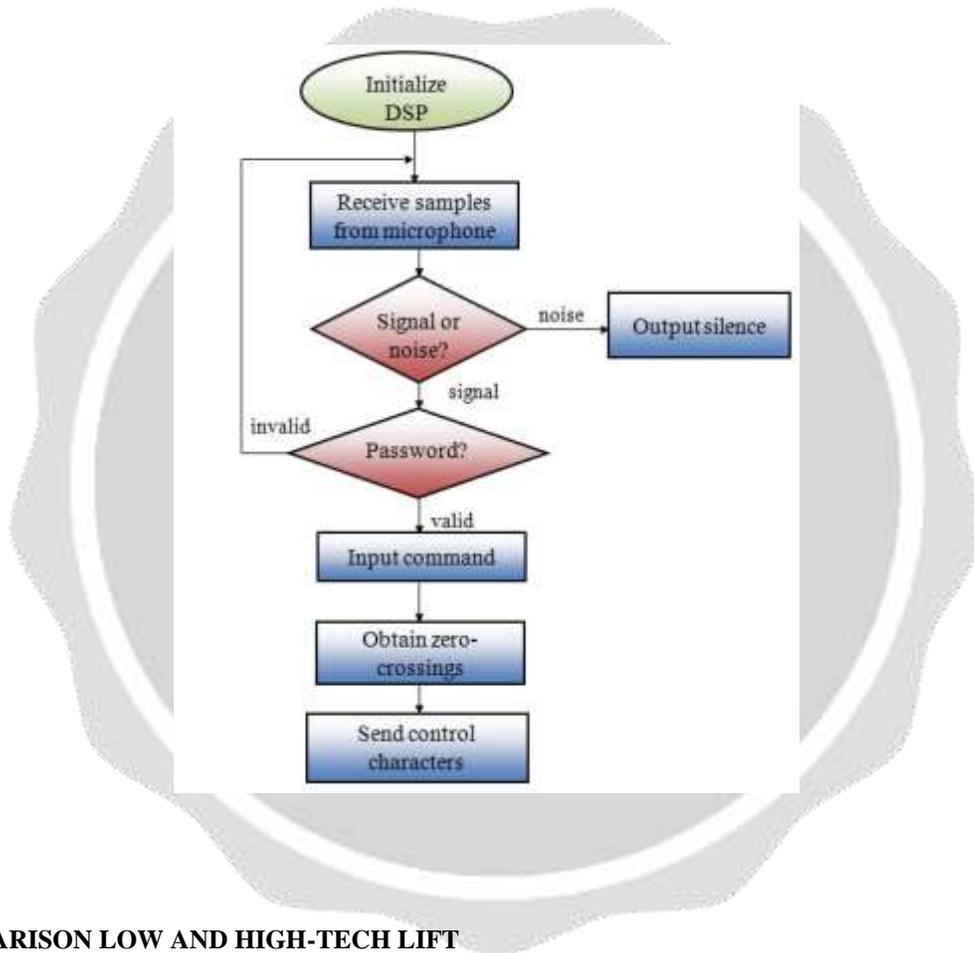


### Features

- 5VDC operating voltage.
- I/O pins are 5V and 3.3V compliant.
- Range : up to 20cm.

Adjustable sensing range.  
 Built -in ambient light sensor.  
 20mA supply current.  
 Mounting hole.

#### IV.PROJECT FLOW CHART



#### V. COMPARISON LOW AND HIGH-TECH LIFT

##### **TRACTION ELEVATORS**

The significant contrast among footing and water driven lifts is standing out the frameworks transport the taxi. With footing lifts, the taxi is raised and brought down by foothold steel ropes or belts on a pulley framework. Contrasted with water driven frame works, foot hold lifts:

##### **HYDRAULIC ELEVATORS**

In contrast to footing frameworks, pressure driven lifts don't utilize overhead raising hardware. All things being equal, these lifts lift a taxi by utilizing a liquid driven cylinder that is mounted within a chamber. The impo liquid has customarily been oil-based yet can be supplanted with vegetable oil to diminish the natural effect

## VI. CONCLUSION

A voice acknowledgment program and its association with a regulator can supply an adequate measure of orders vital for the lift control on which the lift will work. The old lifts were having downsides like there was key press issue and time needed to squeeze one key was likewise more. In this voice worked lift, we are taken anticipation in crisis condition like lift disappointment and here sign given to the security individual who will be inside security lodge. This voice-based arrangement of lift is saving time however there was an issue of safety.

## VII. RESULT

A voice recognition program & its connection with a controller can supply a sufficient amount of commands necessary for the elevator control on which the elevator will operate. The old elevators were having drawbacks like there was key press problem & time required to press one key was also more.

In this voice operated elevator, we are taken prevention in emergency condition like lift failure & here indication given to the security person who will be inside security cabin. This voice - based system of elevator is saving time but there was a problem of security.

## VIII. REFERENCES

- [1] "Voice Operated Lift/Elevator in Emergency" International Journal of Research in Engineering, Science and Management Volume-1, Issue-11, November-2018.
- [2] "Voice Operated Intelligent Lift" International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 05 Issue: 06 June-2018.
- [3] "Voice Operated Elevator with Emergency Indicator" Volume 5, Issue 3, March 2015 ISSN: 2277 128X International Journal of Advanced Research in Computer Science and Software Engineering.
- [4] "A Voice Controlled Robot using Arduino, International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 –8958, Volume-5, Issue-6, August 2016.
- [5] "Improve the Industrial Fault Detecting Process by using Microcontroller and GSM Technology" Prof. P. P. Titarmare, Naresh Tarte, Jayanti Srivastav, Anali Yadav, Kartik Sahara. Suryodaya College of engineering, Nagpur, MH, India Page No: 5589-5592 DOI:16.10089.IJMTE.2019.V9I3.19.28136
- [6] "Water Purification using Solar Power Ultraviolet System", By Prof. P.P. Titarmare, (IJEREEE), Volume 4, Issue 3, March 2018, ISSN 2395-2717.
- [7] Prof. P. Titarmare, Komal Choudhary, Harshad Kawase, Sagar Namghar, Swapnil Binder, "Dual Axis Sun Tracking with an Automated Cleaning System for Pv Modules", *IOSR Journal of Engineering (IOSRJEN)*, Volume-6, Issue Dec. 2019, Pages 42-45
- [8] Swapnil Bendre Prof. P. Titarmare, Komal Choudhary, Harshad Kawase, Sagar Namghar' "DUAL AXIS SUN TRACKING FOR SOLAR PV MODULES WITH AN AUTOMATED CLEANING SYSTEM", (*JETIR*), Volume 7, Issue 5, May 2020, ISSN 2349-5162