

# Lab VIEW Based Mobile Robot in Hospitals

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## Abstract

In this paper, we are designing a new enhanced and practical brilliant automated medical caretaker is intended to decrease the physical weight of attendants in emergency clinics by attending the patients regularly. This robot is executed utilizing Lab VIEW as creating stage, which makes the equipment and programming all the more simple and solid.

## Article History

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## I. INTRODUCTION

Patients in emergency clinics are antagonistically influenced by clinical treatment and assessment because of absence of satisfactory medicinal services and a terrible patient level contact with the specialist. The robot structured here helps the specialist in completing clinical gear and gives collaboration among patient and specialist.

Emergency clinic nurture normally utilizes truck to convey her instrument to the patient. We have to move or drag the truck to the patient bed and over and over bring it in a day. This can be tiring for medical caretakers since they have to deal with other clinic patients.

### Objective:

To construct a practical and proficient automated framework utilizing NI-MyRIO, modified to accommodate reconnaissance reason, in this manner going about as a substitute for nurture in clinic applications like every day checking, going to patients

## II. LITERATURE SURVEY

[1] Hemesh Sawakar et.al proposed a framework that can be remotely controlled utilizing the Android

App. It comprises of a robot that is associated with the Wireless Camera. This robot catches the video feed of high goals and transmits this feed to the Android associated gadget for robot control. The Bluetooth module can be added to improve usefulness to perform activities and upgrades.

[2] Anas F. Ahmed et.al introduces the idea and acknowledgment of a Wi-Fi convention and windows working framework based failed robot control. The mechanical tank development headings are constrained by the outwardly evolved studio condition utilizing a GUI. The robot can send the planned beneficiary continuous video. It can likewise choose and put objects with automated arm (4-DOF).

[3] G. Anand ravisekar et.al proposed a robot that can be worked by means of the advanced mobile phone or PC web (IOT) utilizing CAYENNE programming. The guidelines are sent to the robot by means of this program and they are deciphered by means of the Wi-Fi module by Arduino microcontroller, all interfaced. This framework chops down human work, however it doesn't appear that keeping up a product is cost-efficient and effective.

[4]N.Pugazhenthil et.al proposed Arduino with the Wi-Fi module dealt with the structure. The framework had been mounted and the recording was recorded and controlled. With the guide of engines, the robot can go here and there from wherever for observing. The robot is constrained by an android application from a remote area. The administrator gets the video by camera to watch whether any aggressors cross our outskirt, however an individual can't watch out for it.

[5]M.Murali Krishna et.al proposed an enhanced framework for physically and naturally worked, versatile robot working with remote control and observing mode utilizing Lab VIEW as the system for improvement. We can add more highlights to get effective yields right now with cameras for checking and we get this idea from references[6][7].

### III. SOFTWARE USED

**Lab VIEW:** It represents Laboratory Virtual Instrument Engineering Workbench.

The Lab VIEW is a framework improvement stage for a language for visual programming from national instruments and an advancement domain

NI-MyRIO:

- MyRIO is a local instruments-based constant implanted assessment stage.
- It is utilized to create applications utilizing its chip and FPGA aboard.
- It requires Lab VIEW.



**Fig 1.MyRIO-frontview**

### IV. COMPONENTS USED

#### Dc Motor:

Dc engine is an electric machine that permits to transform electric vitality into mechanical vitality. The created mechanical vitality encourages the robot to move. It works by the electro-attractive enlistment guideline. We have been utilizing the 60rpm engine here.



**Fig 2. DC Motor**

#### Dc Motor Driver L298N:

This L298N Based Motor Driver Module is a powerful engine driver ideal for driving DC Motors and Stepper Motors. It utilizes the famous L298 engine driver IC and has the locally available 5V controller which it can supply to an outside circuit. It can control up to 4 DC engines, or 2 DC engines with directional and speed control

This motor driver is ideal for mechanical technology and mechatronics undertakings and ideal for controlling engines from microcontrollers, switches, transfers, and so forth. Ideal for driving DC and Stepper engines for miniaturized scale mouse, line following robots, robot arms, and so forth.

An H-Bridge is a circuit that can drive a current in either extremity and be constrained by Pulse Width Modulation (PWM).



**Fig 3. Dc Motor Driver L298N**

#### Battery:

We normally utilized in UPS or uninterruptible force supply, regular to PCs. Such batteries can likewise be utilized to improve open air condition as convenient vitality sources. These are likewise utilized in little vehicles and once in a while power the generators of one beginning kind.



**Fig 4. Battery(12V 7Ah)**

#### IR Sensor:

An infrared sensor is an electronic gadget that discharges so as to detect a few parts of the environment. An IR sensor can quantify the warmth of an article just as distinguishes the movement. These kinds of sensors measure just infrared radiation, as opposed to discharging it that is known as an aloof IR sensor.

It can also be used as brightness detector as it reflects more IR light whenever it gets lightly colored obstacle and reflect less IR light whenever it gets darker colored objects as obstacles. Due to this nature of IR sensor this is used to implement line follower.



**Fig 5. IR Sensor**

#### RFID Reader with Tag:

Radio-Frequency Identification (RFID) is the utilization of radio waves to peruse and catch data put away on a label joined to an article. A tag can be perused from up to a few feet away and shouldn't be inside direct view of the per user to be followed.

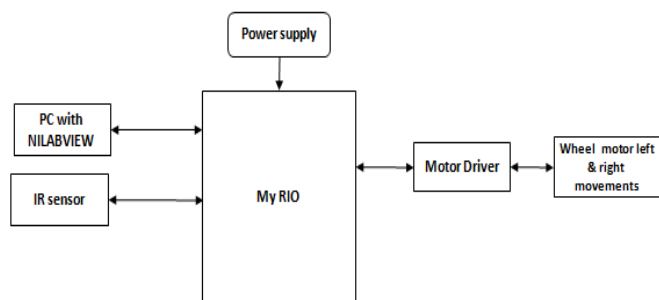
A RFID framework is comprised of two sections: a tag or name and a per use. RFID labels or marks are implanted with a transmitter and a recipient. The RFID segments on the labels have two sections: a microchip that stores and procedures data, and a reception apparatus to get and transmit a sign. The tag contains the particular sequential number for one explicit article. To peruse the data encoded on a tag, a two-way radio transmitter-beneficiary called a cross examiner or per user emanates a sign to the label utilizing a receiving wire. The tag reacts with the data written in its memory bank. The investigator will at that point transmit the read outcomes to a RFID PC program.



**Fig 6. RFID Reader with Tag**

## V. RESULT AND DISCUSSION

### BLOCK DIAGRAM:

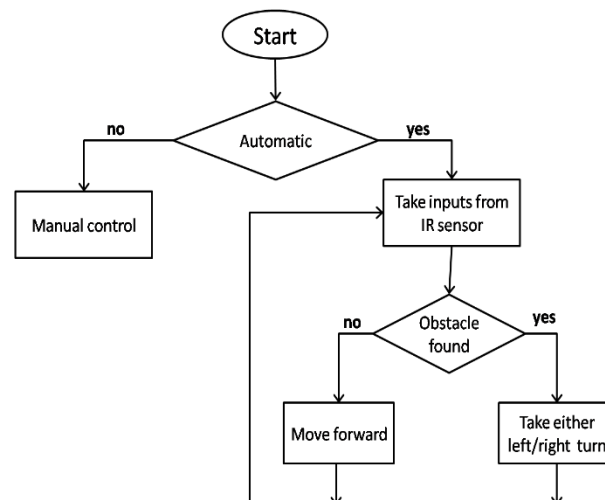


**Fig 7. Block Diagram for a Robot**

In proposed framework, 12v Battery is utilized as a wellspring of intensity supply and correspondence should be possible with the assistance of NI-MyRIO remote correspondence arrange. Right now, controlling of the robot is at first customized as VI's lab view programming and it is sent in My-RIO.

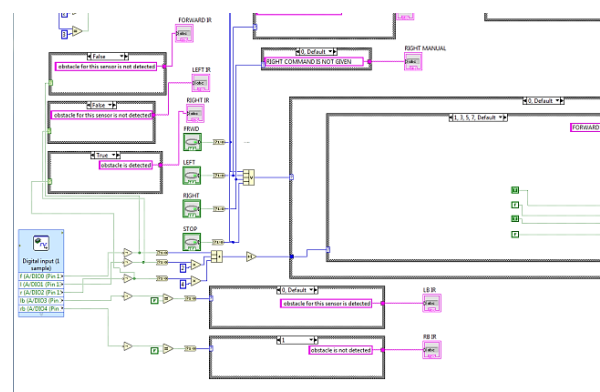
### Working:

This system is designed in such a way that robot reach the desired destination according to given instructions through constructed VI in Lab VIEW which is deployed into my-Rio to make it wireless. All this construction of VI mainly includes the movement of robot to particular point and it is done by using IR sensors and RFID reader and tag for obstacle avoidance purpose and identifying the end point respectively that is go to the desired patient bed. Here IR sensor is also employed to detect back line drawn on the way to the end point as it acts as a line follower robot after reaching the patients bed it will give medicines to the patient by its using robotic arm.

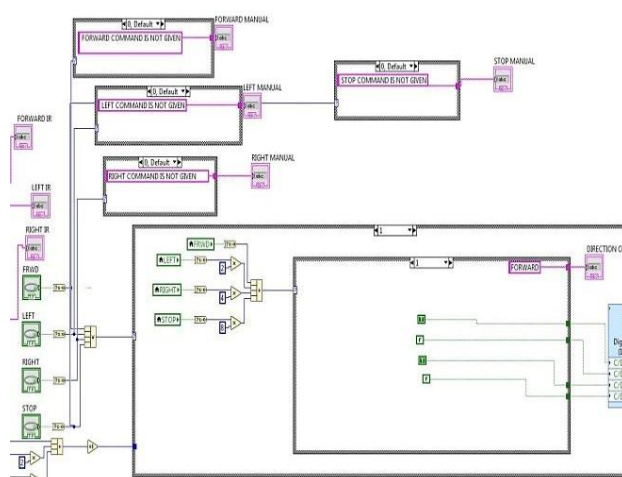


**Fig 8. Flow Chart**

### SOFTWARE CODE:



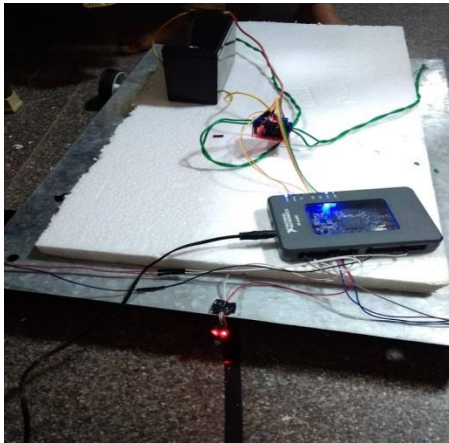
**Fig.9.VI for automatic control of the robot**



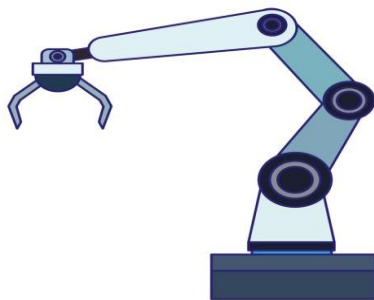
**Fig.10. VI for Manual control of the robot**



## HARDWARE:

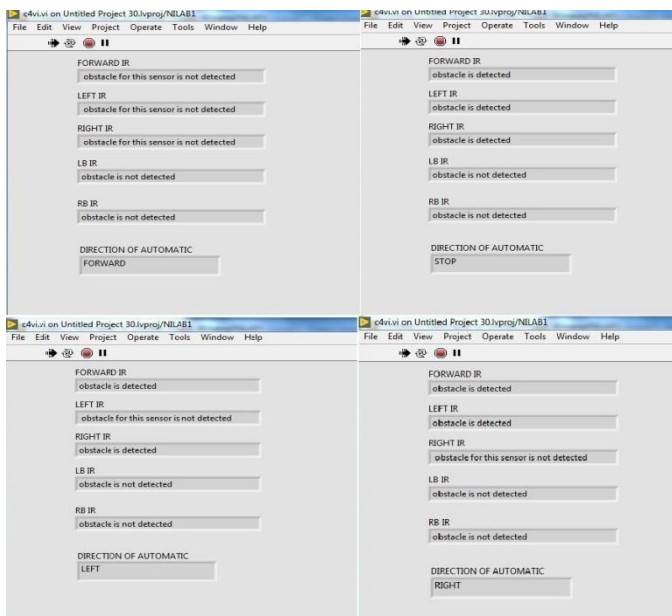


**Fig.11: Base Platform**

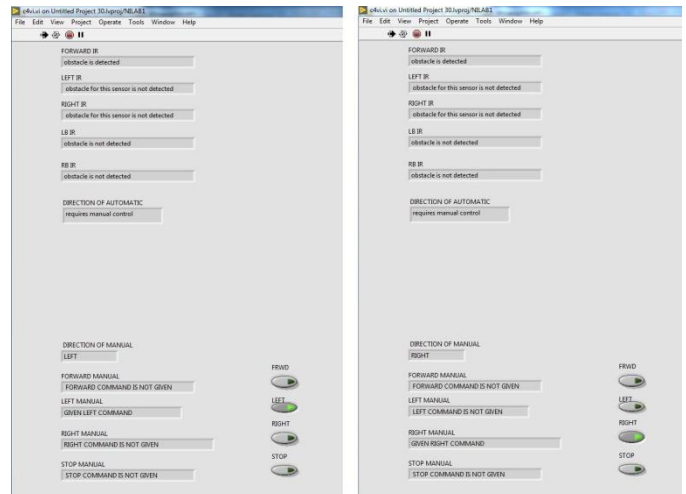


**Fig.12 Robotic Arm**

## RESULTS:



**Fig.13. output view from front panel in automatic mode**



**Fig.14. output view from front panel in manual mode**

## FUTURE SCOPE:

- The idea of observation can be stretched out to 'Land Mine' recognition, just by consolidating a metal finder and high goals camera alongside the robot body created.
- In instance of fire mishap or smoke identification, the robot can be fitted with the particular sensor units, so the data in regards to the unsafe circumstance can be made accessible for the individuals.

## LIMITATIONS:

- It is not recommended to carry heavy loads.
- Need frequent charging of battery.

## APPLICATIONS:

- Path discoverer applications territories out of reach by people like mines and damaged buildings.
- Dimensional following of the region under observation and patrolling.
- Self-guided vehicle for mechanical material transportation framework in huge workspace, for example, medical clinics, compartment protest.

## VI. CONCLUSION

In view of the creating enthusiasm for trademark Human Machine Interfaces. Thus right now, usage of this framework depends on the LabVIEW stage which makes the equipment and programming all the more simple and successful.

## REFERENCE

- [1] HemeshSawakar,ShantanuShingate, AmitKanojia and GauravHajare “Wireless Surveillance Robot Using Automatic &Manual Control”, International Research Journal of Engineering and Technology (IRJET) Volume: 04, Oct -2017
- [2] AnasF. Ahmed, RuaaH. Ahmeed, TamaraZ. Fadhil,”Design and Implementation Surveillance Robot Using Atmega328 Microcontroller” at <https://www.Researchgate.Net/Publication/329894828> Article: December 2018.
- [3] G. Anandravisekar, A. Anto Clinton, T. Mukesh Raj, L. Naveen “IOT BASED SURVEILLANCE ROBOT “International Journal of Engineering Research Technology (IJERT) Vol. 7 March-2018,
- [4] N.Pugazhenth, K.Vinulakshmi, V.Preneeth, K.Shrivani,”Design and Fabrication of Robot for Surveillance Using Arduino”International Journal of Innovative Technology and Exploring Engineering (IJITEE) Volume-8, August2019
- [5] M. Murali Krishna, P Praveen Kumar, Nikhil Chandra, K. Siddartha, and Anil Kumar. “SURVEILLANCE ROBOT USING NI-Myrio”International Journal of Current Engineering and Scientific Research, Volume-5, 2018
- [6] Moxi-Diligent Robotic from [digilentrobots.com/moxibyAustin, Texas](http://digilentrobots.com/moxibyAustin,Texas).
- [7] Article from Enadutelugu dated Tuesday 25 June 2019.