

DESIGN OF WIRELESS GESTURE CONTROLLED ROBOT FOR DISABLED AND ELDERLY PEOPLE USING NANO

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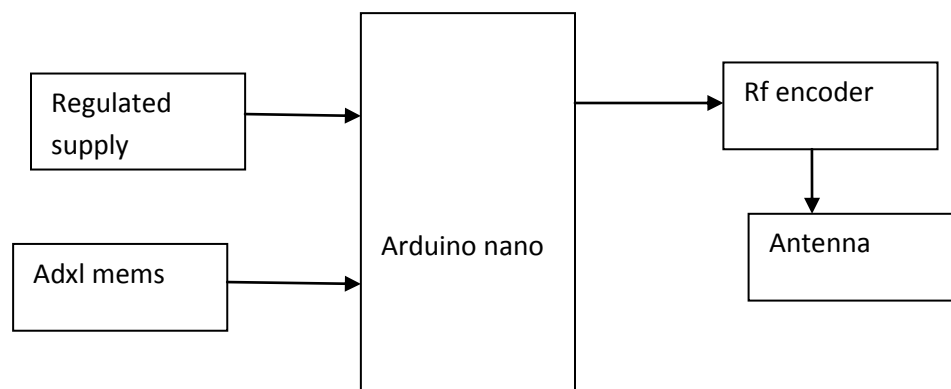
ABSTRACT:- This paper proposes a style of hand gesture controlled automaton victimization Arduino Nano. The model projected is controlled through a motion device that is mounted on the hand gloves. This style helps physically challenged folks and additionally for sure tasks educated by human. the most aim of this style is to manage the automaton victimization hand gesture. Measuring device utilized in the planning senses the direction of hand movement and sends an indication to Arduino Nano. Four main Hand gesture movements like FORWARD, BACKWORD, LEFT and RIGHT area unit detected and enforced.

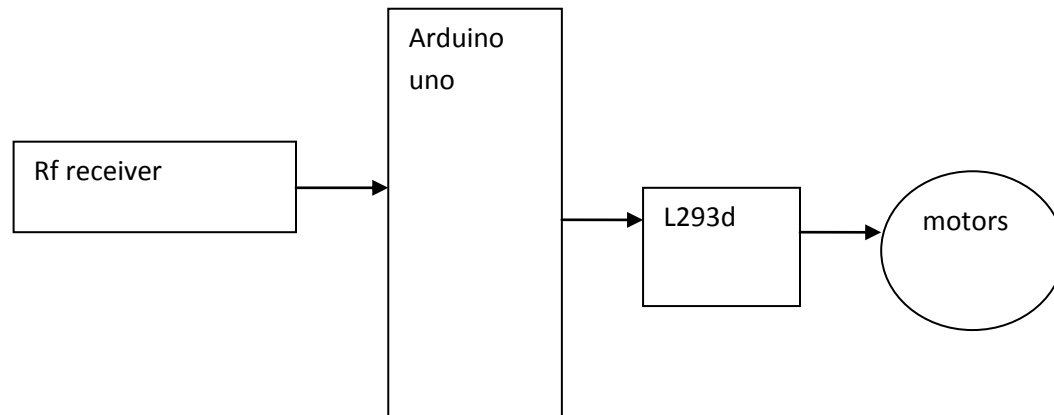
Keywords: Arduino Nano, Accelerometer, hand gesture, wireless robot, physically challenged.

I. INTRODUCTION

People would like to regulate everything with my hands! Sitting in a chair and dominant things sort of a boss. Thus I finally came out with a hand gesture recognition automaton, which might follow the commands created by hand gestures. Sounds crazy however I promise it's terribly easy. The automaton is split into 2 necessary elements, transmitter and receiver. Here we'd like to program the transmitter circuit. thus i will be able to be mistreatment AN Arduino because the programming platform. To sense the gestures created i will be able to be mistreatment AN measuring system detector. Let's see deep part operation of style of Hand Gesture Controlled automaton mistreatment Arduino Nano and let's see deep operation circuit operating of style of Hand Gesture Controlled automaton mistreatment Arduino Nano

TRANSMITTER BLOCK DIAGRAM



RECEIVER BLOCK DIAGRAM**Fig 1 transmitter and receiver blocks.****II. OPERATION OF COMPONENTS INVOLVED** *Accelerometer ADXL335*

An measuring device may be a 3-axis acceleration activity part. The measuring device that used here is ADXL335 and it's three axes X, Y, Z. the ADXL335 is part that measures the vibration or motion of structure the force of vibration or a amendment in motion this affects the 'squeeze' the electricity material which provides AN electrical charge that's proportional to force exerted upon it.the charge is proportional to the ADXL335.Now days all good phones have measuring device that used for motion games for e.g. temple run.

An measuring device has half-dozen pins that as VCC, GND, X, Y and Z and conjointly ST. Vcc is connected to the 5v power offer. X and Y area unit connected to the Arduino Nano pins of 7(A0) and 8(A1)Microcontroller Arduino Nano

Arduino Uno is that the microcontroller board supported the ATmega328p, Arduino Uno it's the center of the project that planning to management the golem by giving the directions and there ar many varieties of Arduino boards however here the sort of board is Arduino Nano, even this additionally planning to do an equivalent method however with some distinction, the distinction that is nothing however system voltage, clock speed, digital I/O, analog inputs and programming interface and additionally the price.

Encoder HT12E & Decoder HT12D

Encoder HT12E and Decoder HT12D, the 12 which means 8 address lines and 4 information lines and E and D letter speaks to the Encoder and Decoder Crafted by HT12E and HT12D which

dependent on 8 address lines and 4 information lines ,according to information sheet the information going to HT12E "4 information lines" which wrapping that info information and goes to the HT12D , HT12D translates the wrapped information by Encoder equipped for interpreting data that comprises of N address bits. It has 18 pins. Stick (1 to 9) associated with ground. 10,11,12,13 pins of decoder are (connected) associated with 10, 15, 7, and 2 of Motor drive. A resistor of 47KOhm is associated between 15 and 16 pins. fourteenth stick is associated with RX433 information stick. IC takes a shot at 5v power supply, VDD is associated with stick eighteenth.

The HT12E arrangement encoder is utilized. It is equipped for encoding data that comprises of N address bits? It has 18 pins. Stick (1 to 9) and 14 are associated with ground. Stick number 10,11,12,13 of the encoder are associated with 8, 9, 10, and 11 of Arduino Nano board. A resistor (10kohm) is associated between sixteenth stick and fifteenth stick. seventeenth stick connected (associated) to Data stick of 433MHz RF transmitter module. IC deals with 5v power supply, VDD is associated with stick eighteenth

Transmitter circuit for the system

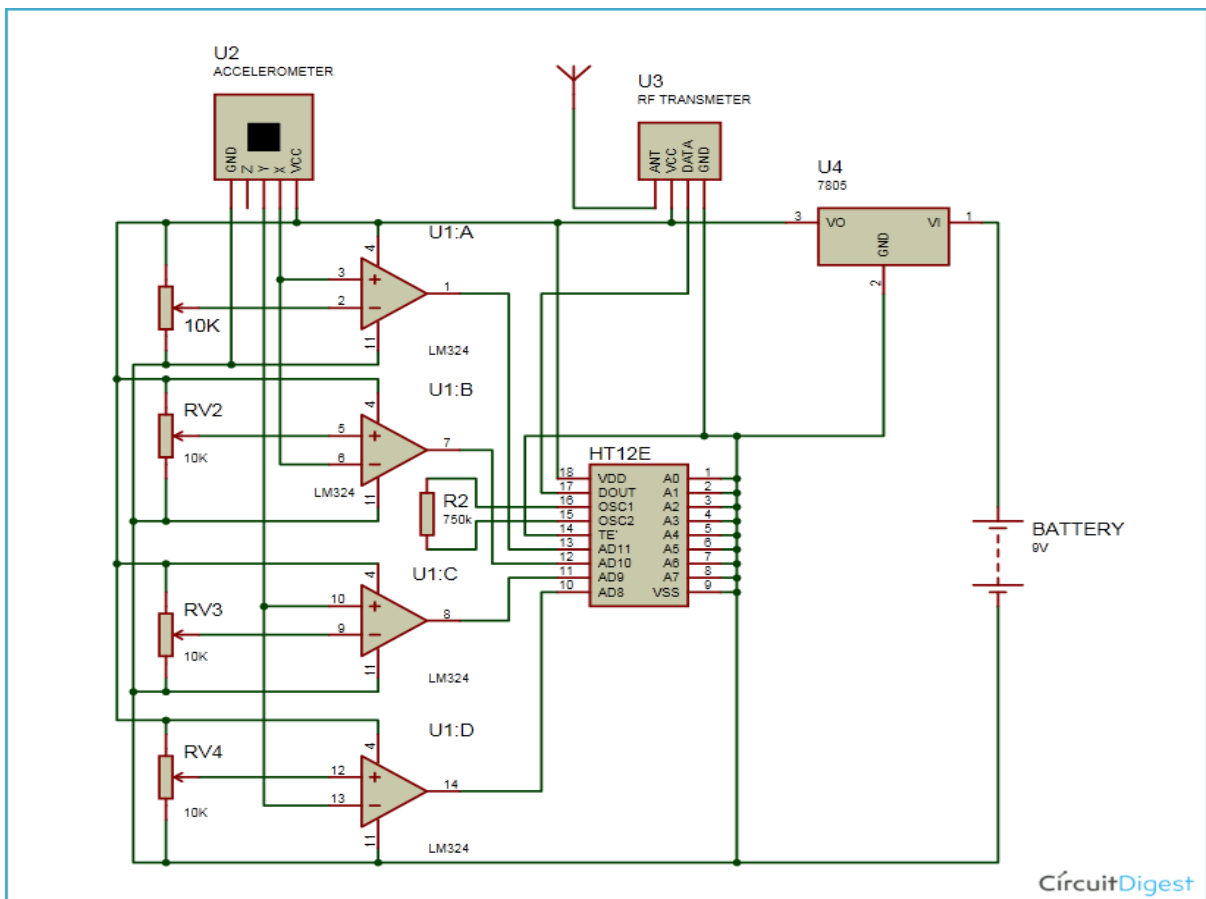


Fig2 :transmitter circuit

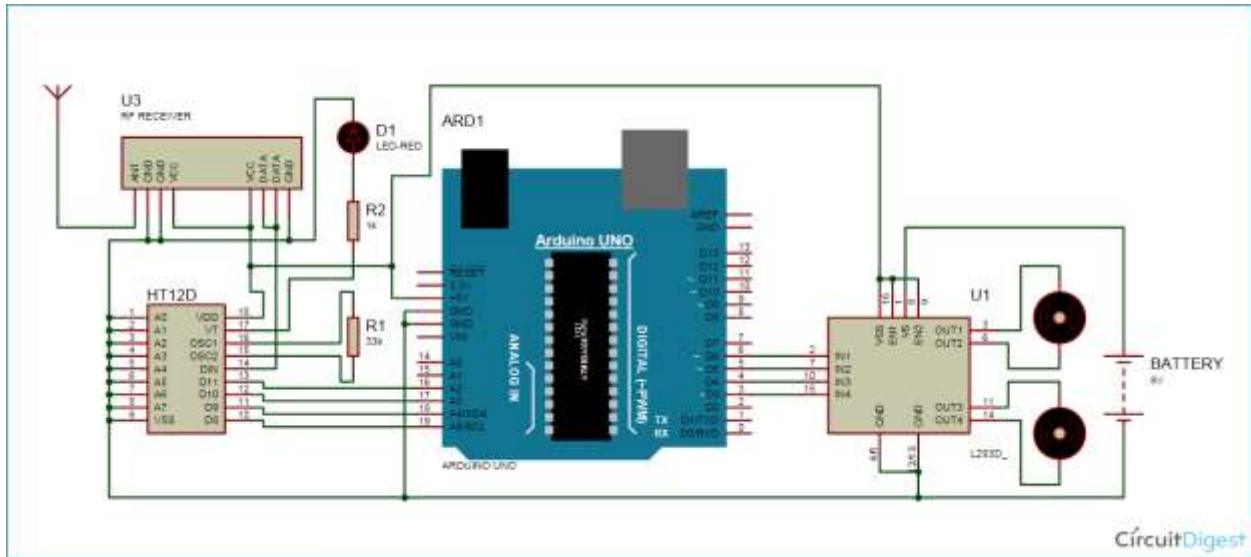


Fig:3 receiver circuit

RESULTS

Design and working

The Transmitter part is kept on palm and the beneficiary part on robot vehicle that moves as indicated by the hand development. This paper depicts about the five distinct sorts of motion places of the hand. This is only 'stop condition', 'forward condition', 'in reverse condition', 'right' and 'left'.

1. Stop Condition

At the point when the accelerometer position is even arrangement, every one of the yields of the decoder will be high. That yield pins are 13, 12, 11 and 10 those are set to 1 (high) which makes robot to stop.

2. Forward condition

At the point when the accelerometer position is tilted to advance. Decoder yield pins 13, 11 are set to 0 (low) and other two yields pins of 12, 10 are set to 1 (high) which makes robot to push ahead

3. Backward condition

At the point when the accelerometer position is tilted to towards in reverse position. Decoder yield pins 12, 10 are set to 0 (low) and other two yields pins of 13, 11 are set to 1 (high) which makes robot to move in reverse.

4. Right condition

At the point when the accelerometer position is tilted to towards right position. Decoder yield pins 12, 11 are set to 0 (low) and other two yields pins of 13, 10 are set to 1 (high) which makes robot to move towards right.

5. Left condition

At the point when the accelerometer position is tilted to towards left position. Decoder yield pins 13, 10 are set to 0 (low) and other two yields pins of 12, 11 are set to 1 (high) which makes robot to move towards left.

Result:

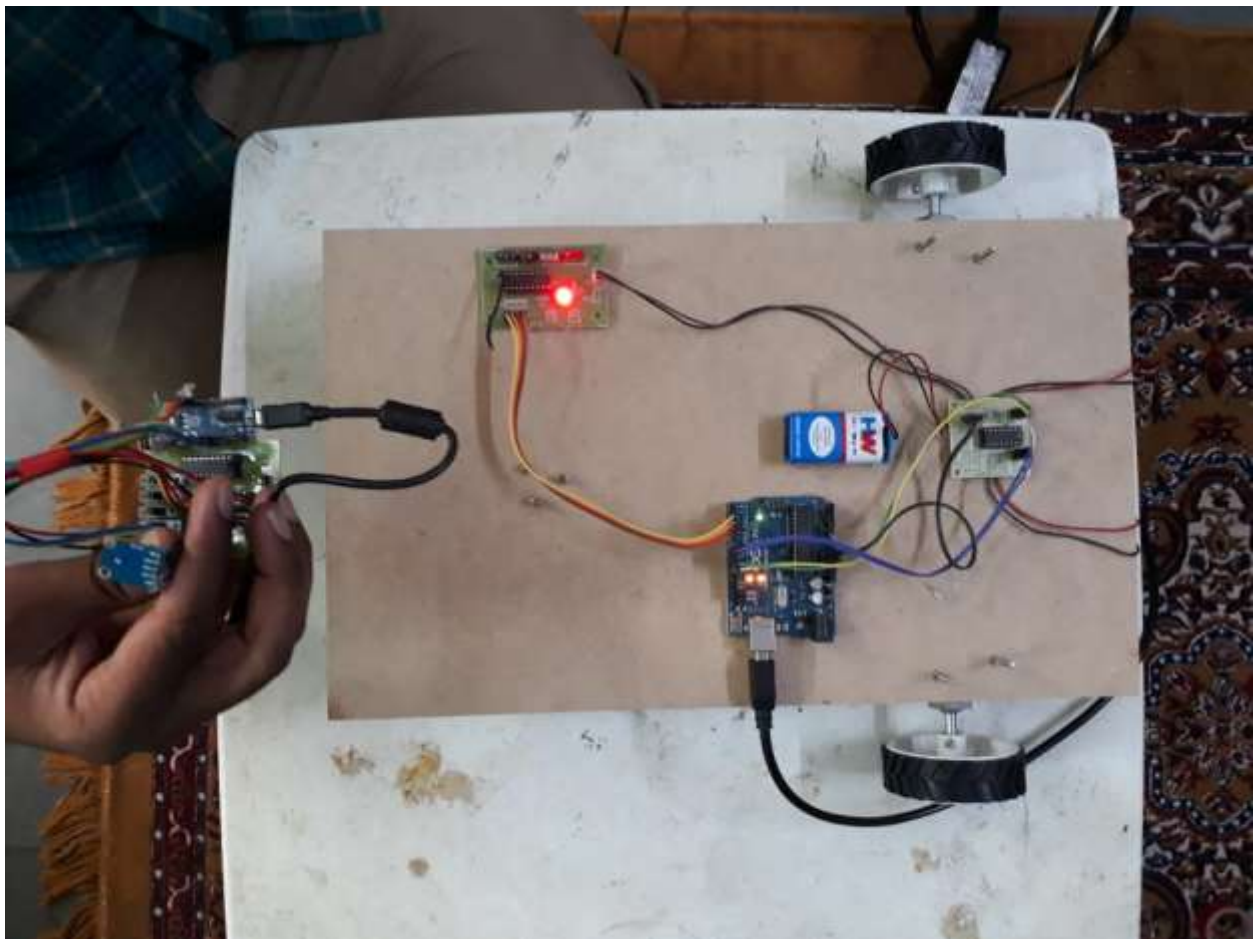


Fig 4:experimental setup of the project with transmitter and receiver circuit

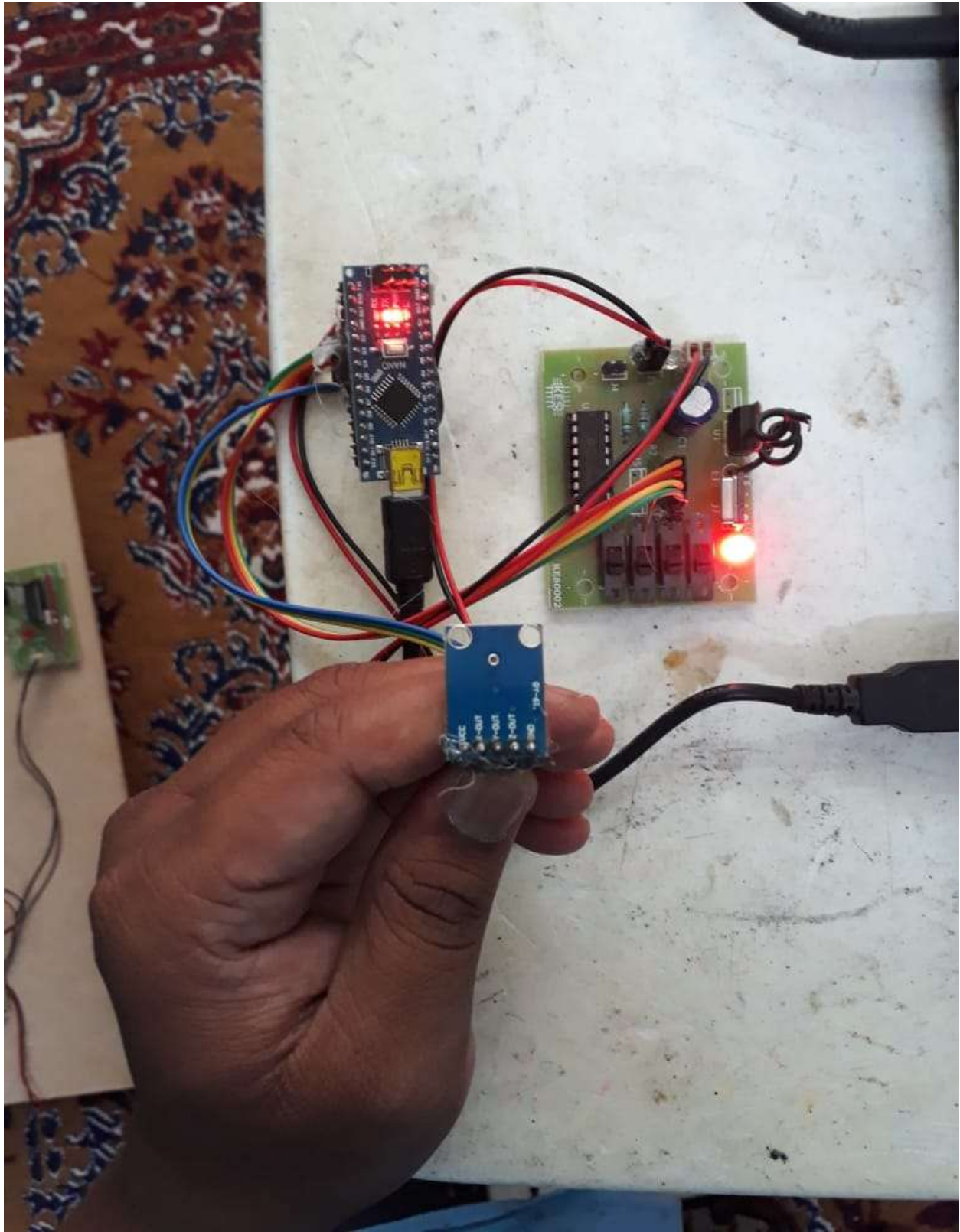


Fig 5: hand gesture sensor with transmitter circuit

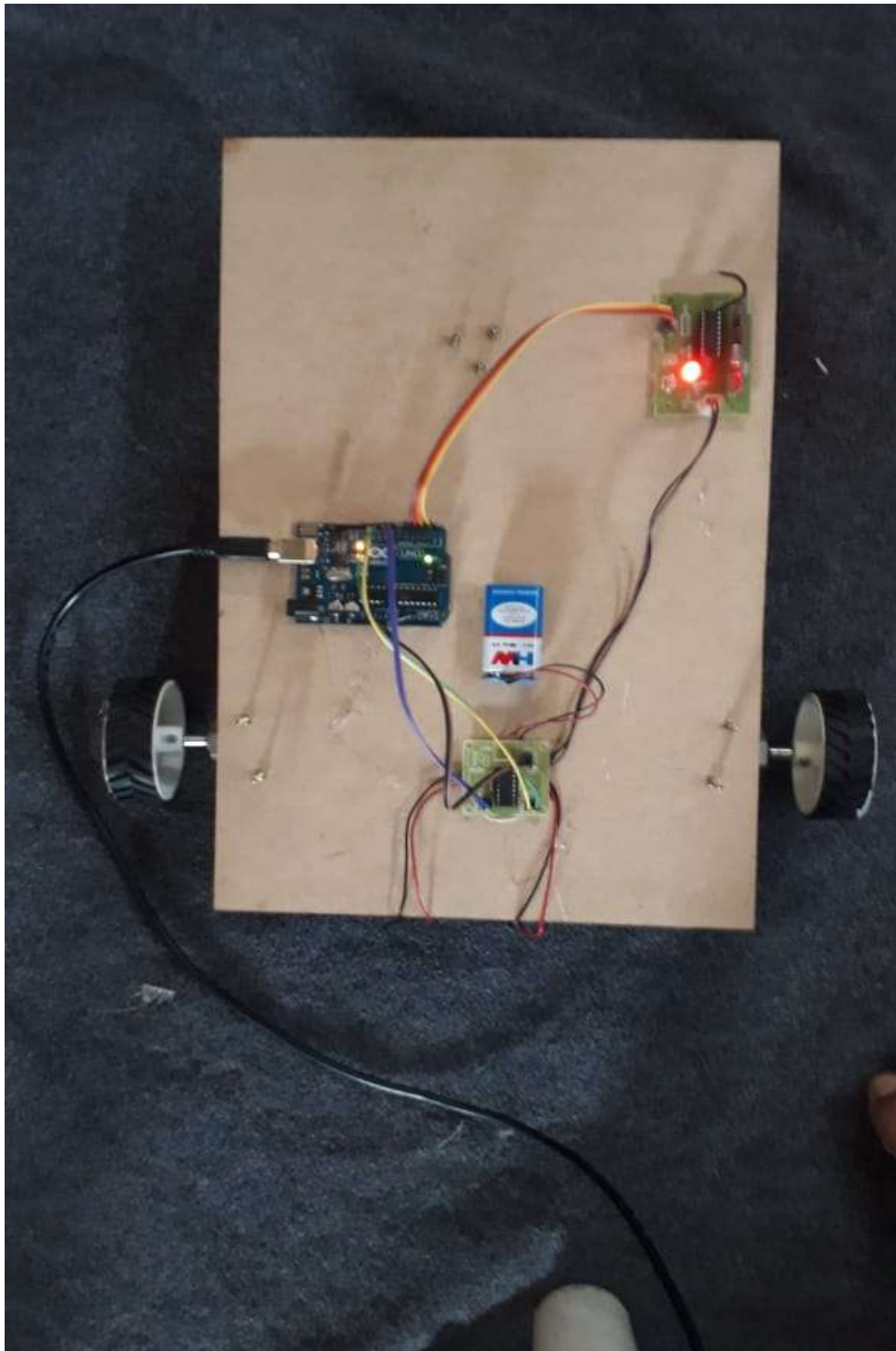


Fig 6: robot with receiver circuit

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Najma Begum is a student of VTU, CPGS, Kalaburagi. Her area of interest are VLSI, embedded system and microelectronics.



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