RF GLOVE

A Method and device for wireless flexion control and Flexion glove

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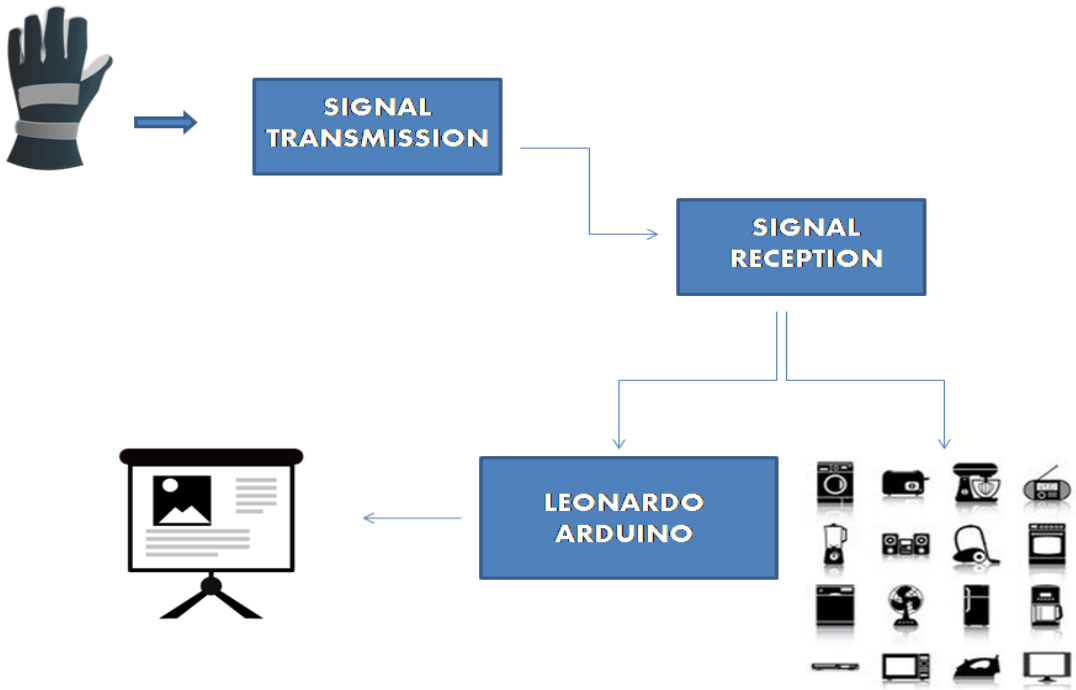
***Abstract*—The main aim of this paper is to devise and implement a new device of automation based on RF transmission and reception which can be installed in houses, offices and many other places. This glove can be used as an aiding machine which helps old and physically challenges people to easily control the home appliances like fan, light etc. The limelight of this device is its capability of being used as a smart presenter. This glove can be used as a remote in PowerPoint presentation where the user can wear it and at the same time present his presentation by changing the slides using this glove. The other important component used in this device is the Arduino board which helps the glove act as a keyboard emulator. It lies in the receptor circuit. Flex sensors are used in taking the signals with the respective movement by the hand of the user.**

***Index Terms*— RF, RF glove, Home automation, Smart presentation, Flex sensors, Arduino.**

I. INTRODUCTION:

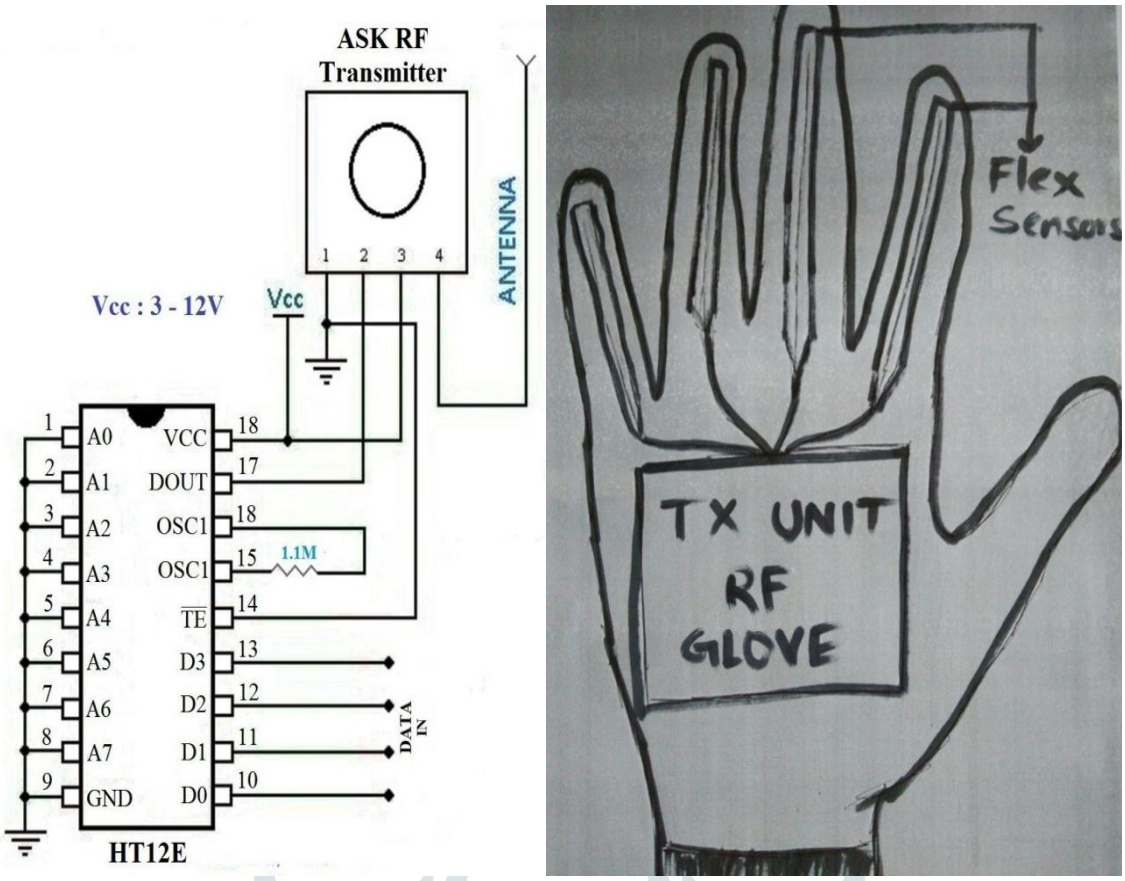
These days many home automation methods are being available in the market. Many devices were being innovated and entering the world of automation. This new device is intended for the new type of automation which consumes less power and is efficiently used, securely operated, portable and handy. Hence this idea was originated where the embedded systems meet the wearable electronics. The RF transmitter is embedded on a glove which acts as a remote and the receptor circuit consists of RF receiver circuit. To augment the usability of this device, it had been interfaced with Arduino and programmed to work as a keyboard emulator and hence control the slides of a PowerPoint presentation.

II. BLOCK DIAGRAM:

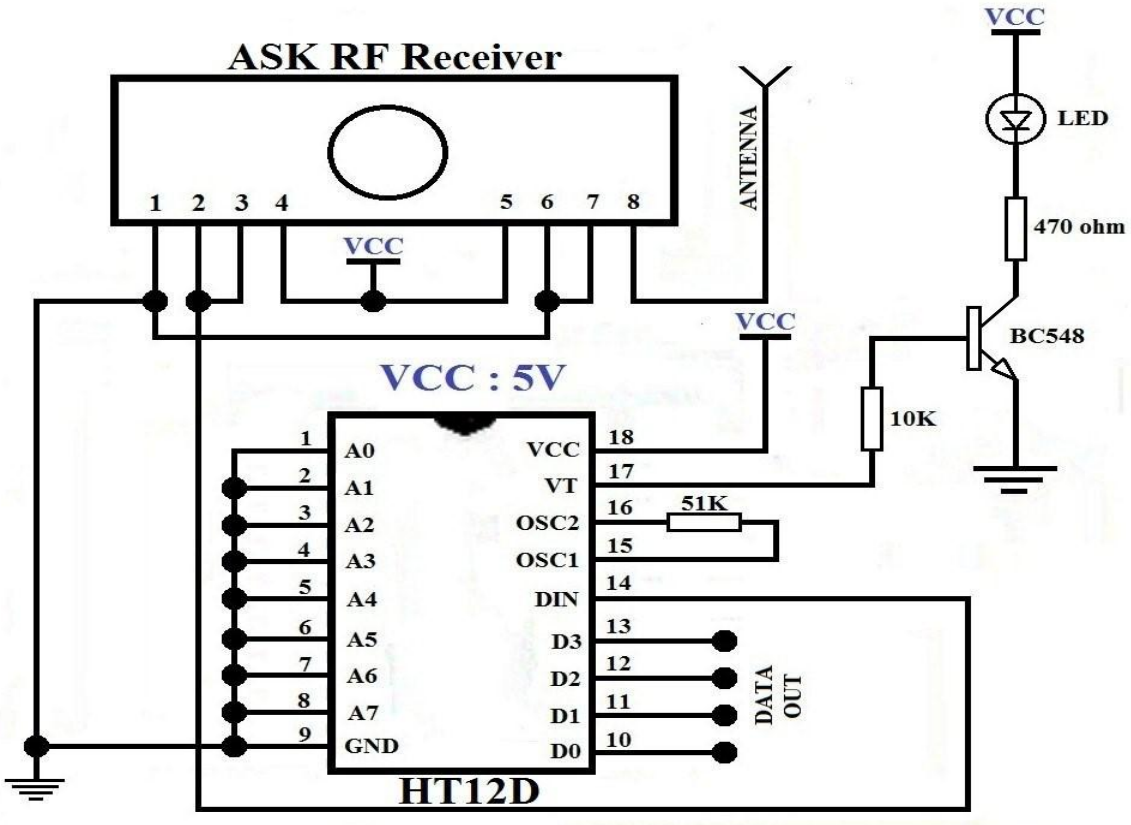


III. CIRCUIT DESCRIPTION:

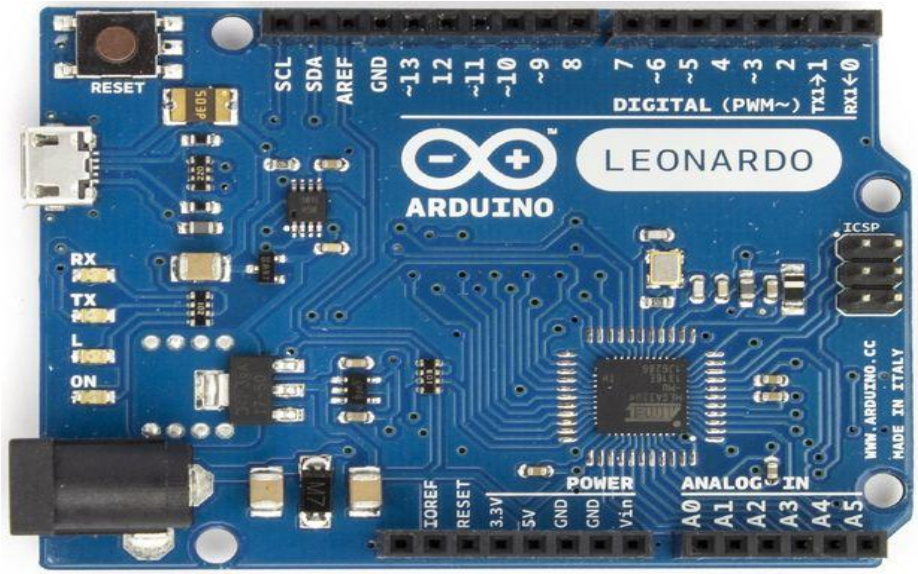
In the proposed device the basic RF circuit is implemented with the respective inputs taken from the flex sensors. This input is is in analog form and is converted to digital data using ADC. This digital data is further encoded by HT12E encoder. This encoded data is transmitted by the RF transmitter (here we used RF transmitter of frequency 434MHz). The respective circuit diagram is shown below.



This transmitted data is therefore received by the receiver circuit which is exactly channelized similar to that of the encoder address bits (left side of the HT12D encoder in the fig above). The received data is therefore decoded by the decoder which we used HT12D here. This data is sent to relays to switch the electrical appliances.



By extending the use of this device the data can be sent to an Arduino which is programmed to behave like a keyboard emulator. The ASCII values of the certain keys desired are set as computer inputs to the respective receiver outputs. For this purpose exclusively Leonardo Arduino is used.



IV. RESULT:

V. CONCLUSION

- This paper proposes a method to control the electrical appliances using an RF glove and by further exploitation and introducing Leonardo Arduino the very same device is used to change the slides in a power point presentation by using it as a keyboard emulator.
- This device is successfully completed and is functioning very well and had been provisionally patented. [6293/CHE/2015]

REFERENCES

[1] www.engineersgarage.com/electronic-components/rf-module-transmitter-receiver
[2] Open source Arduino IDE