

## عنوان مقاله:

Voice commands classification in order to control robot movement

## محل انتشار:

سومین کنفرانس بین المللی توسعه فناوری در مهندسی برق ایران (سال: 1399)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

In this paper, a robot has been designed and implemented to move in four main directions by voice commands. The robot consists of a HC-5 Bluetooth receiver module, an Atmega8a microcontroller, a L293d motor driver and two regulators. 2 seconds voice were recorded from 5 different subjects and preprocessed by a Butterworth bandpass filter. A Frequency feature was extracted from the operator s voice and it has been classified by KNN and ANN classifiers with different structures. The performance of ANN was better in comparison to the KNN classifier. Also when the network trained with one person and test with the same person the accuracy was higher. The best result was for ANN classifier with 12 neurons in the hidden layer when the input data were windowed and it was  $90.7 \pm 3.1\%$  accuracy. finally, the outputs of the classifier send to the robot via Bluetooth module and the robot is moved in the .desired direction for 3 seconds

## کلمات کلیدی:

Voice-based robot, Classification, Speech processing, Fourier transform

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1022008>

