

## Voice Commands Recognition of Mentor Robot in Noisy Environment Using HTK

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**Abstract :** this paper presents an approach based on Hidden Markov Models (HMM: Hidden Markov Model) using HTK tools. The goal is to create a man-machine interface with a voice recognition system that allows the operator to tele-operate a mentor robot to execute specific tasks as rotate, raise, close, etc. This system should take into account different levels of environmental noise. This approach has been applied to isolated words representing the robot commands spoken in two languages: French and Arabic. The recognition rate obtained is the same in both speeches, Arabic and French in the neutral words. However, there is a slight difference in favor of the Arabic speech when Gaussian white noise is added with a Signal to Noise Ratio (SNR) equal to 30 db, the Arabic speech recognition rate is 69% and 80% for French speech recognition rate. This can be explained by the ability of phonetic context of each speech when the noise is added.

**Keywords :** voice command, HMM, TIMIT, noise, HTK, Arabic, speech recognition

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