

## **Abstract**

Nowadays, there are more and more applications, which are able to make decisions, and carry out tasks based on the heard voices and changes from the environment. For example Alexa who was developed by Amazon. Her task is to help her clients through questions that arise on internet purchases. Different sensors are used on the Internet of Things to explore the observed environment. As a result of the perceived events, final tasks are performed.

The project's goal was to implement a system which is capable of isolating the sound sources in our home using some sorting algorithm.

The thesis presents the structure of the created database, the system plan of the application which was implemented in Matlab, six algorithms were used for producing different feature vectors (MFCC, LPC, FFT, Cepstrum, Reflection coefficients and Mel-spectrum). We can gain insight into the neural network, how do they work, how can we create our own, and how does the learning of the neural network really work. Finally, we will examine the results of the system.