**Term Project - 10**

**Voice recognition via Fourier Transform**

# **Introduction**

Voice recognition is becoming more and more important in everyday life of people. In real world there are many ways of implementing those algorithms but as we learn Fourier Transform why not to try. So your teams main goal is to implement simple algorithm based on Fourier Transform to recognize “YES” or “NO” words. For this task you have to record your own saying of YES and NO with your own microphone and create two files (.mp3, or wav or any other you like). Then pass it through your algorithm and demonstrate its working

# **Your TASK**

1. Write Fourier Transform (Fast Fourier Transform) code to analyze the signal (source file you recorded)
2. You can design one or more band pass, low pass filters to extract what you want.
3. Use other statistical methods to increase your correct recognition rate.
4. Once you decode the signal you should live demo it
5. Make software that can decode other people’s sounds automatically
6. Make presentation and explain about how you did, what equations you’ve used, what kind of filter you’ve designed and etc.

## The materials attached:

1. The source file is your recorded “YES” and “NO” music files (so no separate files for you)
2. Once you have Fourier Transformed the signal try to understand what each bin in X axis represents (Frequency, Hz) and learn how to calculate it. It will help you to plot with correct values in X-axis.
3. Keep in mind that the signal might contain noise as well.

**IMPORTANT NOTICE:**

1. Submission **DEADLINE**: **1st May** via eClass
2. One submission per team is sufficient!
3. Submit ONLY implementation part of your code of Fourier Transform (Fast Fourier Transform) in WORD file. Also, include your task and your results.
4. During your presentation, there will be an **INDIVIDUAL Q&A** to grade team members separately.