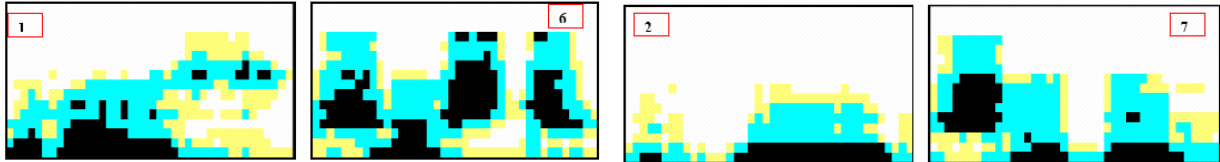


## Project no. 9 (2 persons)

### Word recognition by spectrogram image classification

A direct spectrogram-image classification for up to 6-10 single-word computer commands, like for example: *pause*, *start*, *end*, *break*, *ok*:



Especially the following steps should be designed and implemented:

1. (P1) Read and write a .wav file, acquire different learning samples of the 6-10 commands – write them as .wav files. Detect sound and silence in the input image. Present the waveform and the 2-D spectrogram in graphic windows.
2. (P2) Perform the Fast Fourier Transform (FFT).
3. (P2) Make the spectrogram image reduction to an appropriate size and obtain the feature vector by scanning the image. Perform the learning process of a Bayes classifier.
4. (P1) Implement the Bayes classifier and test the classification of commands into the 6-10 considered classes.
5. (P1, P2) Present the learning and classification results in an on-line manner by means of point clusters in a 3-D space. Prepare a final report.