# SPEECH SEGREGATION BASED ON BINAURAL CUE: INTERAURAL TIME DIFFERENCE (ITD) AND INTERAURAL LEVEL DIFFERENCE

**Name of student : Mifta Nur Farid**

**NRP : 2409100012**

**Department : Teknik Fisika FTI – ITS**

**Adviser : Dr. Dhany Arifianto, ST., M.Eng**

**ABSTRACT**

In a conversation at a cocktail party, a person can focus on single conversation even though the background sound and other people conversation is quite loud. This phenomenon is known as the cocktail party effect. In an early study, explained that binaural hearing have an important contribution to the cocktail party effect. Bagus Tris Atmaja (2012), has done research on sound separation based on sound localization. In his study, the separation of mixed voices only use one binaural cue, interaural time difference. So in this study, will be performed separation on the input binaural sound with 2 microphone sensors of two sound sources based on both the binaural cue, interaural time difference (ITD) and interaural level difference (ILD) using binary mask. To estimate value of ITD, is used cross-correlation method which the value of ITD represented as time delay of peak shifting at time frequency unit. Binary mask is estimated based on pattern of ITD and ILD to relative strength of target that computed statistically using probability density estimation. Results of sound source separation performing well with the value of speech intelligibility using the percent correct word by 86% and 3 dB by SNR.

**Keyword:** *cocktail-party*, *binaural hearing,* ITD*,* ILD*, percent correct word,* SNR