Project for DSP Lab

Term of us

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What we want to do:

- **overview：**

A simulation real-time 2D voice signal position identification system based on microphone array

- **details：**

In the simulated two-dimensional space, a voice signal source is generated at certain point. Received signal of microphone array (position of each microphone is fixed) is simlulated by applying delay (based on the distance between mic and source) and adding Guassian noise (for SNR control). Real-time signal processing algorthms are used for retrieving the delay and computing the source position.

Methods we will use

- **demonstration:**
- GUI produced by Tkinter to plot the 2D space and configeration
- Real time wave plot produced by matplotlib
- Source position can be changed in GUI and the estimation positon will plot in real time.
- **algorithm:**
- delay retrieval (likely to be *Generalized Cross Correlation PHAse Transformation，GCC-PHAT*)
- source location estimation