Motivation: The object of our project is to design and implement a drum tab reader. When we put a drum score sheet in front of the camera, the DSP processor can identify what it reads and then play the rhythm.

Design Process:

Pre-Processing (Build score database) In this step, we remove noise and convert original image into binary image (only black and white); Detect and Adjust the staves; Adjust the distortion by moving other point relatively according to the staves; finally, remove staves (convert to white)

Segmentation and Recognition Since the notes and the tails are compact and connect, by doing projection on x-axis, we can locate each note to achieve segmentation. Then project on y-axis for each segment, find out what level each note is, and how many tail it has.

Score Interpretation After recognition, we would like to transform the information to an array which would determine when is to going to play each notes, so that the rhythm could be expressed.

Now, we can play the drum sound!