Introduction
More than 282 million visually impaired people.

Most of the android phones have in-built camera with them.

Our idea is to come with an android application that will read out value of currency captured through camera. The output will be in audio format to help visually impaired people to detect currency value.

Research questions and Methods
Detection of key points : Surf vs Sift
Chosen : SIFT

Area to be considered : Whole image vs Filtered areas
Chosen: Filtered areas

Gray Scale vs Colored image
Chosen: Gray scale

Classifier : Haar like vs Bag of words Vs Features
Chosen: Mixed

How it works?
- Set of classifiers which detect type of currency
- The first is Bag of words classifier with SIFT detection on selected areas to get key points and generate visual vocabulary. Train SVM based on all images using generated vocabulary.
- Second is, feature based which considers pixel attributes including color, relative contrast to generate features vector.
- Last is Haar like feature classifier, which generate feature vector from most significant filtered areas.
- Accuracy based feature generator generates feature vector for master SVM based on accuracy of each classifier for each class of currency.

Results
The combined classifier works way better than individual classifiers alone. The test set is randomly chosen fifty images excluded from training set.

Dataset
- Indian currency Dataset of size: 1.3 GB
- Classes: one, ten, twenty, fifty, hundred, five hundred, thousand
- 450 images per category, total : 2700

How can it be better?
- Detecting non-bills: Identify non currency images by training with negative samples and BoW histogram
- Optimize random pixel selection for faster identification.
- Detection from video stream instead of photo.