**EXISTING SYSTEM:**

Around 180+ currencies are available around the world and the need for an automated system related to currencies has been increasing exponentially recently. The need for developing systems that process notes without human intervention for various different uses has been pivotal for the development of systems that help in detecting and recognizing currency notes. However the varying features in each notes and the security aspects involved in different currencies make this task extremely difficult. Various systems have been proposed in the past that take into account different features such as aspect ratio and HSV values . Methods such as pattern matching have been proposed to develop a system that uses a single algorithm for all the currencies. However not a single method has proven to be efficient enough for actual development thereby making this problem statement an interesting area of research. Once the pre-processing steps have been done, we can identify which regions of the note are relatively empty (black pixels in the binary image). This is done based on certain predefined areas. All the currencies are clustered into groups based on which regions of the note are relatively empty. We have chosen to divide them into 3 groups – left side empty, right side empty, and center empty, although if the number of currencies were larger, we could possibly use a larger set of groups (top empty, bottom empty, etc.). Grouping is done by finding out the ratio of black to white pixels for the required region, and then classifying the note based on this ratio. The values chosen to classify the notes have been found experimentally. Note that some notes have no significant empty space, and therefore don’t fall into any of the groups. These notes are classified into another group.

**PROPOSED SYSTEM:**

In this paper, we propose an automated system for currency recognition using Image processing techniques. Our system works for 20 of the most commonly used currencies. One of the first methods proposed to identify the currency notes using image processing techniques was in the early 90’s. However their algorithm does not take aspects of authentication of the notes into account. Thus it has been assumed that the notes are in good condition and images as desired are obtained. It is noteworthy to mention that the system proposed requires the input images to be taken in a predefined angle and distance. The system proposed then applies a series of pre-processing steps on the input images and then extracts certain features such as hue, saturation and value parameters in order to compute a Euclidean distance using these values and compare them with the values that are used as standards. Though this method tries to propose an overall algorithm for all the currencies, it is not an efficient method to identify the notes as certain notes across countries have similar features. The image of the banknote must first be pre-processed to remove any extraneous noise. This is done by applying a simple de-noising filter. The image is then converted to a binary image using adaptive threes holding. Once the banknote has been segregated into one of the predefined groups, we can check the image against templates for each of the countries within that group. Note that this is requires less comparisons than checking the image against all templates of every country in the system, and is the reason we have chosen to segregate the countries into such groups. The templates are chosen such that they are small (thus requiring less computation) but still uniquely identify the country of origin.