WORK PLAN AND METHODOLOGY

Methodology -

1) **Training of Samples**: The implemented system reads multiple images of different classes and train for maintaining a knowledge based database for pattern recognition.

   (Michahial et. al, 2012)

*Wavelet Analysis* – Wavelet transform (WT) is a time – frequency analysis method that is successful in the analysis of non-stationary signals. (Sharma et. al, 2012)

*Correlation* – It measures the linear dependency of grey level of neighboring pixels.

   Digital Image Correlation is an optical method that employs tracking and image registration techniques for accurate 2D & 3D measurements of changes in images.

   (Mohanaiah et.al, 2013)

2) **Transformation** - In the first level of DWT three matrices are generated in horizontal, vertical & diagonal direction. Instead of using all elements of each matrix, there is a calculation of mean & standard deviation of each matrix and store in the feature vector.

   (Rajaei et. al, 2011)

The proposed work implement Harr wavelet for the decomposition of given image. The transformation module is realized for both training of database images for knowledge as well as for feature extraction of test sample. (Ramadan et. al, 2009)
3) **Feature extraction** – In this research the first set of extracted features of sample images is obtained using DWT domain sub images. The DWT is implemented using cascaded filter banks in which the low pass & high pass filters satisfy certain specific constraints. For feature extraction only the subimage. Using DWT, size of input matrix is reduced. (Jafari et. al, 2013)

4) **Classifier** – The core unit of a pattern recognition system is the classifier unit, which determines the property and predict the given sample, its class and category depending upon the extracted features. The classifier unit reads the trained samples from database training unit, test training unit and compares the obtained features. (Srivastava et. al, 2013)

The feature extraction and matching part are coded in **MATLAB**.
WORK PLAN:

1\textsuperscript{st} 6 Months: Reviewing literature on research problem & statistical data will be collected.

2\textsuperscript{nd} 6 Months: Secondary data related to feature extraction & pattern recognition will be collected defined as a database.

3\textsuperscript{rd} 6 Months: Coding the collected data in MATLAB.

4\textsuperscript{th} 6 Months: Binding thesis work.