**Literature Review**

The aim of this project is to generate a model that can enhance images taken in low-light situation and also correctly classify some objects in the frame of image using machine learning. The project also focuses on studying the effects of different enhancement algorithms on improving the classification accuracy of classifiers.

Prior studies in the field of enhancing images in low-light have provided with some methods that can be applied to improve characteristics of images.

**Y. Tendero, S. Landeau, and J. Gilles, “Non-uniformity Correction of Infrared Images by Midway Equalization,” Image Processing On Line, vol. 2, pp. 134–146, Dec. 2012.**

Y. Tendero, S. Landeau, and J. Gilles (2012) derived method of correcting Non-Uniformity in infrared images. The non-uniformity is a time-dependent noise caused by the lack of sensor equalization. This method was designed to suit infrared images. Nevertheless, it can be applied to images produced for example by scanners, or by push-broom satellites. This single image method works on static images, is fully automatic, has no user parameter, and requires no registration. It needs no camera motion compensation, no closed aperture sensor equalization and is able to correct for a fully non-linear non-uniformity.

**P. Getreuer, “Automatic Color Enhancement (ACE) and its Fast Implementation,” Image Processing On Line, vol. 2, pp. 266–277, Jun. 2012.**

P. Getreuer (2012) has provided with algorithm for Automatic Color Enhancement (ACE) which was introduced by Gatta, Rizzi, and Marini based on modeling several low level mechanisms of the human visual system. P. Getreuer has successfully reduced the computational complexity of ACE on an NxN from O(N4) to O(N2logN) using polynomic approximations of the slope function decomposing the main computation into convolutions.

**“OpenCV: Histograms - 2: Histogram Equalization,” OpenCV: Histograms - 2: Histogram Equalization. [Online]. Available: http://docs.opencv.org/3.1.0/d5/daf/tutorial\_py\_histogram\_equalization.html. [Accessed: 10-May-2017].**

Methods such as Histogram Equalization and CLAHE (Contrast Limited Adaptive Histogram Equalization) can serve as valuable tool in boosting the contrast of foggy or nearly uniform contrast images.