Samsung Prism Problem Statement

Problem Statement:

The problem is basically broken down to two stages: -

- Stage 1
  In this stage we need to collect a dataset of images. These images would be of an object subjected to the internal flash of the phone and one without the object being subjected to the internal flash of the phone being used. The reason why we are collecting both these images are so that incase due to unforeseen circumstances, we happen to need, to make use of the images without flash, we wouldn't not have to repeat the process of dataset building.
  Once the dataset is built, the primary focus will shift from creating the dataset to building an algorithm to detect the shadowed region(s) that were created due the internal flash what was used while taking the picture in low light conditions. Focus will be on low light as the flash will have none or next to none effect on the image in brightly lit conditions.
  Furthermore, once we are able to successfully detect the shadowed region, we will start focusing on optimizing or developing other algorithms to increase the accuracy and make it into a very light and fast program. The goal to reach can be envisioned with the images given below.

(a) This image is of a watch taken without a flash.

(b) This Image is taken with flash. You can notice the shadowed region near the base of the watch.

(c) This image has the shadows that we create by the external flash highlighted in red. We intend to reach this goal of identification of shadows caused due to the flash used in the device.

- Stage 2
  In this stage, we will be working on developing a machine learning model to remove and replace the shadow that has been created by the external flash (shadows as shown in the image **c** above). This would be developed as a app so that it can run on devices running on Android.