Project Proposal

- **Project ID:** 17
- **Project Title:** Removing Camera Shake from a Single Photograph
- **Github Link:** DIP_Project
- **Team Members:** Vaibhav Garg(20171005), Pulkit Gera(20171035), Saraansh Tandon(20171007)
- **Main Goals:**
  Deblurring an image containing camera shake blur due to camera motion or instability of the equipment.
- **Problem Definition:**
  Camera shake, in which an unsteady camera causes blurry photographs, is a chronic problem for photographers. A 2step solution for the problem has been proposed. First, the blur kernel is estimated from the input image. The estimation process is performed in a coarse-to-fine fashion in order to avoid local minima. Second, using the estimated kernel, a standard deconvolution algorithm is applied to estimate the latent (unblurred) image.
- **Expected Results:**

Input image

Deblurred

- **Timeline:**
  - 30th Sep - 7th Oct:
    - Understanding the problem space as well as the solutions proposed in the research paper both in a practical as well as a mathematical domain.
  - 8th Oct - 15th Oct:
    - Beginning the implementation of the solution.
    - Major focus on the first step in the two-step process, i.e. estimation of the blur kernel.
  - 16th Oct - 23rd Oct:
    - Continuing with the implementation.
    - Major focus on the second step in the two-step process, i.e. estimation of the unblurred image with the help of the estimated blur kernel.
  - 24th Oct - 1st Nov:
    - Explore the solution space further and look for improvements in performance, runtime, quality, accuracy, etc.
    - Incorporating the feasible improvements in the implementation.
  - 2nd Nov - 9th Nov:
    - Experimentation Phase.
    - Run the implementation on a large and diverse set of images and record results as well as inferences and shortcomings.
  - 9th Nov - Final Submission:
    - Indulge in a feedback-improve loop by trying to overcome the discovered shortcomings.
    - Prepare the presentation for the final submission.