Team Members:

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Objective: To understand and implement existing video stabilization software and suggest modifications to the same for greater accuracy.

Deliverable: A code in which we input a shaky, unstable video and get a stable video as an output. We also plan to compare various stabilization algorithms if time permits.

Programming language to be used: Python 3

Libraries proposed to be used:

- OpenCV for image and video manipulation and processing
    - goodFeaturesToTrack - OpenCV: Feature Detection
    - calcOpticalFlowPyrLK - OpenCV: Object Tracking
    - estimateAffinePartial2D - OpenCV: Camera Calibration and 3D Reconstruction
- Numpy, Scipy, Pandas, and Scikit for mathematical tools
- FFmpeg for large-scale video editing

Timeline for the Project:

- Pre-midsem(by 2nd meeting):
    - Find research papers and journals related to existing software, procedures and
    - Implement the algorithm
    - Benchmarking multiple algorithms for performance and accuracy
    - Evaluating the pros and cons of each algorithm
- Post-midsem (by Final meeting/Presentation):
    - Identify relevant changes for the most accurate algorithm
    - Develop an algorithm incorporating the proposed changes
- Additional/Future work, if time permits
    - Cascading two or more algorithms to achieve higher accuracy and stability
    - Benchmarking different cascades and algorithms to compare performance trade-offs