360 Degree Field of View Camera

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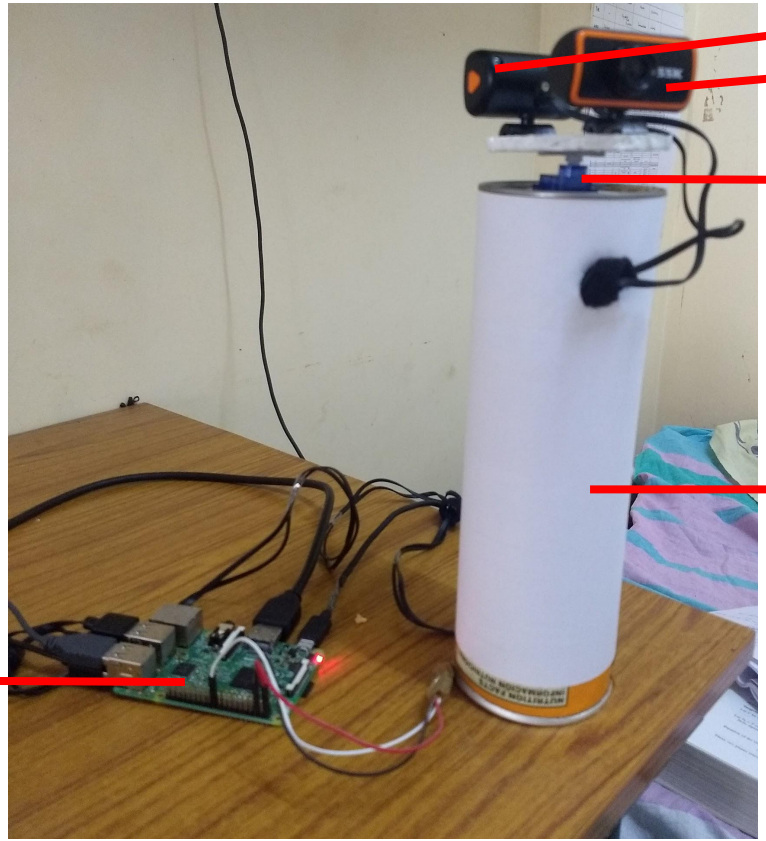
Goal

- To develop a 360 Degree Field of View Camera, using two inexpensive webcams. The two cameras are mounted on a stand which is rotated by a servo motor and multiple images are taken. These images are then stitched to form a panorama.
- Software :
  - Interfacing cameras using Raspberry Pi and Python
  - Stitching the multiple images using OpenCV library
  - Development of unique and efficient algorithm for image stitching, to get better result.
  - Using image stabilization techniques for enhanced quality of images.
- Hardware:
  - Development of robust stand for the camera to avoid destabilization, while the servo motor is rotating.
  - Development of portable module which houses camera, battery pack and Raspberry Pi.

Current Prototype

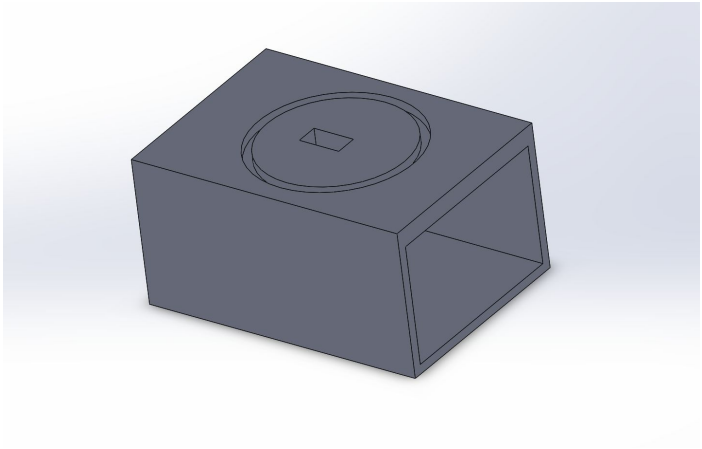


Preliminary Results

Stitched Image:

Future Prospects

- Developing an efficient stitching Algorithm for faster and better results.
- Applying Image Recognition techniques so that camera can detect objects in the 360 image.
- Miniaturization of the model. Designing a 3D printed case for the same.



CAD Model for Camera Case

Thank You!