Group Members:

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Team name:

Folk Detect Innovative Bison

Project Topic:

Climbing wall mapping + hold detection + tape detection = route identification
(Maybe route matching based on an arbitrary picture of a route too)

Schedule:

11/9: Collect photos
- Go to the Gregory rock wall and take at least three sets of photos to make panoramas from
- In the three sets of photos make sure to have easy, moderate, and difficult paths
- In the three sets of photos make sure to have at least 2 paths per set (6 total)

11/10: Create panoramas and ground truth data
- Create panoramas from our photo sets
- For each of the three panoramas, manually mark the holds
- For each of the three panoramas, manually mark the paths
- Update progress report for the first check in on 11/13

11/16: Find the holds programmatically
- Write code that when given a photo will mark all of the rock wall holds on that photo using one or more of the following methods:
  o Feature Detection
  o Background subtraction of the rock wall face
- Attain at least 60% accuracy when comparing our programmatically calculated holds with the ground truth holds

11/17: Find the path tapes programmatically
- Write code that when given a photo will find all of the tape pieces on that photo using one or more of the following methods:
  o Feature Detection
  o Background subtraction of the rock wall face
- Group the found tape pieces into groups based on their color
  o For each piece of tape, compare it to all other pieces of tape and form a list sorted by the similarity of each tape piece.
  o The most similar n pieces of tape (where n will need to be determined) will be grouped together and removed from the list of tape pieces before the next iteration.

- - By the end of the looping all tape pieces will be categorized based on their similarity into a number of groups, where each group is the collection of tape pieces within a path
- Attain at least 50% accuracy for the groupings of the tape. We hope to achieve a success rate higher than this, but we anticipate the tape groupings to be the most difficult part of the project.

11/23: Create paths from the found tapes
- Using the tape groupings and the holds, generate the most likely paths on the panorama
- Use a heuristic that eliminates paths that can't be completed feasibly by a human, such as a path where two holds in the path are several meters apart from each other
- Attain at least 60% accuracy when comparing our programmatically calculated paths with the ground truth paths

11/24: Make presentation for class
- Make a PowerPoint presentation with photos to use as examples when presenting
- Split the presentation up into sections for each member to discuss with the class:
  - Introduction and project topic
  - Implementation of hold detection
  - Implementation of route/path detection
  - Results and conclusion
- Be ready to present on 11/25, the next day

Progress Report 1:

As planed, we obtained pictures from the wall on 11/9. We decided to exclude the cave area of the wall because of the difficulty of trying to get everything in the frame. We selected the south wall (images with prefix 1- or 2-) as the more difficult wall to process, and the north wall (images with prefix 3-) as the easier wall. The images can be found in the image folder along with some panos we stitched together using code from project-1. We next created a tool to get the ground truths of the holds on the wall by creating bounding boxes around them, this code can be found in the groundtruth folder along with the data in JSON form. This data is for individual holds the single images, not the panos, this is because our machines had a hard time creating the boxes for the large panos.