Meeting n. 1:

Software Engineering Project

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I. SUMMARY

Our team is a team of four students: Gülnur Ungan, Mladen Rakic, Marcio Rockenback, Antoine Merlet. This first meeting was held on 19, October 2017. For this meeting, our goals were the following:

- Get the big picture of the project
- Define each member task
- Define a basic and realistic draft of our schedule
- Define the goals to achieve for the next meeting

II. UNDERSTANDING OF THE TOPIC

During the past summer, one of our member had the opportunity to work or a similar project: 3D body scan using 4 Kinect. The main difference between this previous experience and the current project is the referential used (4 still views against, for this project, one still view with rotating subject). Also, no library such as PCL or Boost were used. However, this does not affect is a great manner the data processing, as the mathematical steps are the same. Here a brief summary of the tasks to accomplish to process the data and form a 3D model of the body:

1. Acquire and store the data (there is no pretension to make it real-time, so storage is needed). Each image is acquired after a partial rotation of the subject.
2. Remove outliers
3. Filter the data
4. Align and register the Point Clouds (PC) two by two, by cascading.
5. Filter the data the prepare meshing: remove low infoarmation points.
6. Triangulation of the data (building triangles between points)
7. Surface rendering

Obviously, each step will have to be studied and detailed in the future.

III. MANAGEMENT

Project Management is a very important part, as in any project. Following is presented a brief outline of the steps to accomplish for the project, as a team:

1. Read previous reports: topic knowledge, past work, implementation choices, algorithms criticism.
2. Define the schedule.
3. Meaningfully split the tasks (according to each members' strengths).
4. Setup a Github repository to enable remote team work.
5. Frequent report writing (Meeting report: team; Weekly report: individual).

Here is our first draft of the schedule:

Week 1: Get started with the project. Start planning and get a clear understanding of the concept/-goal.

Week 2: Study the previous work and install the components.

Week 3: Determine what should be kept (if any) from the previous works, and what should be done/redone (critical reports explaining the choices). Split thoroughly the tasks.

Week 4: Choice the improvements to bring for the project. General design of GUI and Software. Study of the algorithms to use.

Week 5: Start the implementation.

Week 6: Continue the implementation. Change the design if necessary.

Week 7: Finish the implementation.

Week 8: General debugging, optimization if possible. Check the sources, documentation, comments, pack, deploy.

Week 9: Group and check all reports, finish final report, check for typo.

Week 10: Prepare presentation (and demo?) support and speech.

Week 11: Defense.

This first draft is not detailed and is subject to change, according to the difficulties encountered and the new knowledge acquired in the process.

Our Github is hosted at https://github.com/AntoineMerlet/3DScan.

IV. GOALS UNTIL NEXT MEETING

- Read all the previous work reports
- Download all the previous projects
- Start to look at the previous codes
- Install all the necessary components