Kamil Grycz's answers

Computer vision and Machine Learning

1. Take certain amount of images, which depict an object (around bounding box) of interest by clicking on the object. After taking a photo, try to change a little bit position of an object- translation & rotation of the object.
2. Detect feature descriptors of the object on each photo, for example SIFT   and add them to a feature date base. SIFT is a local descriptor which is invariant to translation, rotation, scaling and partially invariant to change of light intensity- that is why I choose this one.
3. Use any method to discard outliers from feature date base, for example RANSAC.
4. Cluster all features using a kd-Tree, which enable to quickly find out if a new given feature can find a close neighbor in date base.

Road Map and Brainstorming

For better performance of the software I would consider these implementation:

1. Find and remove all bugs.
2. GUI (possibility of change camera; filename to save image; images (small icons), which depict different modes) .
3. Tracking recognized object and a library, that You can store objects, you have already tracked and choose them when You start the program once again.
4. Tracking object using blob detector.
5. Tracking object using HSV model with tracking bars to tune the parameters for better recognition.
6. Additional possibility to create a 3d model of an tracked object .
7. Try to find algorithm, which can find out which tracking method is the best for a certain situation and would choose it on its own.

I set such priority because the program I want to develop has to be intuitive and stable- that's why remove bugs and better GUI are at the top. Then additional options of tracking and additional option of 3d model. At the end 'intelligent method' because, firstly all methods have to be implemented to develop intelligent one.

Only me :   task(number of hours)

1(4 h)->2(6 h)->3(20h)-> 4(2h)->5(4h)-> 6(20)->7(10h) -> some of this tasks I have already done, some, I have not, that's why such division.

The team:

1(4h- Me- I know the code, and It would be faster for me, rather than other person has to study how it works.)**-> 2**(4h-Me- still it is something that I know better than they)**->3**(15h- Anna- she is probably better coder than me, so she would do it faster- she does not have to go deep to my code, just create her own)**->4&5**(5h- Mark- still it is additional task, he does not have to interfere to my code)**-> 6**(10h- Anna&Mark- here are several points to be done, so they can easy divide tasks) **-> 7**(10h- still I am a developer, so I know whole app the best, so I will take care of this point)

Open Questions

1. I would be looking for someone to work with me, I will look mainly on two issues: character and competences. I would like to work with the person who I can talk easily not only about work matters. It is proven that good atmosphere in a work place and human relations have huge impact on a job quality and productivity. Competences are important, but I mainly will look if a person can quickly learn and have a good background to develop skills.

2. I think my biggest strength is, that I never give up and try to find a solution for every encountered problem. Even if at a first glance I do not know the right answer, I do not despair but keep going. As far as it is possible I try to do it on my own- rethink problem, read some articles, papers. Then I talk with other, more experienced people, write emails and finally find a solution. It means that if a problem is tough but doable it will take me some time, but if a problem is hard and undoable- it will take me a little more time than a first type.

3. The think that is my weakness is my inattention. Very often I try to do some things very quickly. I just go through the instruction or article briefly and omit details, which for the first glance were not important. I am very stubborn so I manage to finish the task but sometimes I do it in other way. It means I have to be sometimes more patient and more careful thinking about some ideas.

4. I have not worked with product manager, so I will not pretend that I have such experience.

5. This feeling: You work on something for very, very long time and finally You find out how the problem should be solved. You feel like a genius and You know that You did great job. And your fellows appreciate it too. And clients are happy of a solution that You have proposed them. This self-realization. This feeling- when You feel it at the end of the day, or several times during the day- this is my perfect work day. And beer with colleagues at the end of the day ☺

6. Horrible day for me is when I have to install software and libraries that I need and it does not work as people say on "Stack over flow". Then, very often, I have to reinstall whole bunch of files, and I cannot work on the project, because I have to accept commands and click "ok" to install software. But I hope I will not happen very often.

7. If I would like to have unlimited amount of money I would have been born as a Mark Zuckerberg' child. Fortunately I did not happen. I apply to your company, because It seems interesting for me what You do. If I would do, what I like, then for sure, I will continue doing it, despite the money (probably ☺). If I would have this money, then I would spend them for organizing nice trips for a group of my friends, that we can always spend together summer holidays in different places.