Competitive Analysis:

After searching for some projects. I found the idea of chasing the motion of object by human beings and translate it into control signals.

The first project excited me is :http://www.collective-evolution.com/2013/02/24/the-powerful-practice-of-eye-gazing/ The amazing feature of eye gazing is so interesting, and I really think this is a very interesting topic. The good features are we have human motions taken into consideration to make interactive game with it. The drawbacks are we can’t guarantee the exact tracing of the track of the eyes. Usually, other devices are needed for this kind of eye gazing.

Then I searched and find this related video: <https://www.youtube.com/watch?v=2s6WuexjM5k>

The good features are first it uses real time control by outside video ,second it introduces interesting human computer interaction and it is very easy to control .However it also has some drawbacks, the pictures are not very beautiful and there is no sound.

Another example is :<https://www.youtube.com/watch?v=cfa1xUweRWM>

good feature: very interactive from user to computer

anti-feature: really easy to realize and really ugly design.

Then I searched for pygame, where we can play a lot of interesting game especially the arcade games with easy control but complicated algorithm design and level differences.

The previous projects are really interesting. The main features of those projects are on motion tracking and dot tracking. Therefore I decided to do human motion tracking and use that information to provide control information . The eye gazing part is really interesting, but I still think the using OpenCV to track eye motion or facial motion is a little bit difficult and not that effective. Therefore I decide to do just feature tracking of the motion of human hands or just use dot to track the object.

The good part of the motion detection is that we can develop it step by step. First we can achieve color based object tracking, the second step is that we can achieve shape based object tracking if we have time. Combined with the game, we can use this interesting human interactive control to play the game.

When chosing the game, I am inspired by crazy santa : <https://www.youtube.com/watch?v=_RboPlx649Y>. This is a very beautiful game with simple control requirements, that means we can easily translate the position information of the tracking result to the corresponding position of the player in the game. The drawback of this game is that we can only control it up and down, but in my free flying hamster, we can control the player at any place on the screen.