3D Drawer

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The main purpose of my project was to develop a system that allows people to work with 3D objects, not in projections (as on flat computer screens), but in space around us, that is three-dimensional. The advantages of my method against others are that it is more native and convenient. My system includes two cameras that recognize an object, and software that defines the location of the object, and draws its trajectory on a computer. I had to solve three general tasks. First, the system needed an object recognition algorithm. Color recognition was possible to implement and worked well, that is why I have chosen it. Secondly, stereometry was another big part of my project. If I used only one camera, I could only define the ray on which the object lies. However, using the second camera, I get one more ray that gives me an ability to definitely find the coordinates of the object by crossing two rays. Also, I had to teach the system to recognize a user's hand to provide a start\stop control, so that the drawing process could be paused. I reached success in all parts, and in result created a working prototype, for a new type of 3D drawing, made some tests and made sure that system works correctly and gives high accuracy. As for the future development, gesture recognition will be added to the project to diverse control mechanics.

Awards Won: