The following localization algorithm uses particles(which are estimates of a robots location). In our case we are applying it to a simulation of a solar system. The light blue dot shows the estimated location of the planet at a specific time step. There is noise however in the estimate as there is in real life. We can see this by the distance between the light blue dot and the red dot(target planet for localizing). Our test points are light blue and the red dot. The white fuzz contains hundreds of particles which are estimates of the target planet location. Our blue point is the average location of those estimates. With each time step we receive gravitational measurements from our satellite(orbit in a fixed circular motion) sensors, and our location of the target planet becomes more accurate.