# 3D Mouse

## Project Advisor

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## Project Description

Leap Motion: Leap motion is a type of controller for a computer which works as motion sensor. The controller tracks all the ten fingers and joints in a 3D space. The controller can be put near the computer and the space above it becomes a 3D zone which can be controlled by your hands. The research is still in basic stage and the sensor field is still limited to around 8 cubic feet space around the controller. Leap motion development started in 2008 and the first product was launched in 2012.

After the product became commercially available, there were various users reviews came out. Most of the users noticed that though it’s an interesting piece of technology but still is not useful for the day to day task performed by normal users like reading emails, web browsing or word processing. It is not very accurate and painful to use.

My goal will be to implement a 3D mouse which recognizes simple and advanced gestures using a 3D motion control device. And to improve some features of leap motion technology so that swipe gestures and navigation in a computer will be much easier.

SDK libraries

Leap motion library is written in C++. I have started going through the SDK libraries and found that all the plug-ins are already included in Leap motion SDK. Leap.jar contains the java classes and leap.py contains python model. My primary focus will be in java development. There are also other libraries for objective C, javascript and C#. The operating system that I will be working with is windows 8.1 but the leap motion can be made to work with any operating system by changing the native code libraries used in the code.

## Milestone

• Week 4 milestone: Implementation of equivalent to 2-D mouse functionality (left/right click, selection, etc.)

• Week 8 milestone: Gesture recognition for simple gestures

• Week 12 milestone: Gesture recognition for advanced gestures

• Final report will include test results of using a 3D mouse in comparison to a 2D mouse and poster presentation

## References

<https://wiki.cs.rit.edu/bin/view/Main/Hpb:3DMouse>

<http://www.engadget.com/tag/leapmotion/>

https://developer.leapmotion.com/documentation/csharp/devguide/Leap\_SDK\_Overview.html