Abstract

3D realtime interactive simulation application, as visual appoach to real world with interactive control, demands movement effect as physical approach to feel the real 3D world. For example we can find gamepad and arcade machine using vibration feature to simulate a physical approach.

In an airplane simulator machine for airplane pilot there is a physical approach using position leaning to simulate gravitations. Until today, 3D application using leaning approach only simulate leaning less than 90 degrees and without simulating vehicle up side down. As a good simulator, every angle of the user position possibilities should be able to be simulated along with every change of any vehicle position and movement in 3D world. A full leaning effect to simulate gravity with every vehicle position possibility from 3D world is needed.

With using pendulum analogy and a certain kind of simulator mechanism which enable to simulate full leaning effect, gravitation effect can be simulated in any possible angles. This project build an 3D interactive application as well as a simulator using full leaning effect to simulate gravity from 3D world.

Keywords: simulation, physical approach, 3D interactive, full leaning effect, gravity, simulator.