Abstract

This engineering thesis was aimed to create a 3-dimensional mobile game based on server-client architecture. As a result Sculpic and game server was created. The game is based on widely-known Pictionary but with 3-dimensional graphics. Players instead of drawing on a 2-dimenstional plane can use a variety of solids by placing them in 3-dimensional space and sculpting. Players trying to guess a phrase being shown can inspect the scene from any possible angle.

Sculpic is an application for devices with Android operating system. It's been built with game engine Unity 3D using our C# scripts.

The game server has been placed in virtual machine created in Azure platform. As a database we have used MongoDB. The database keeps user information (e.g. username, password hash, current ranking) and a list of available phrases. The communication with database is possible thanks to WCF service based on SOA (Service Oriented Architecture) by RESTful requests. What is more, the virtual machine contains a service which launches a room hosting application on player demand.

While creating the application we have come by some major problems:

- hosting rooms available for all players no matter what network they are in,
- sending current solid state from drawing player scene to the guessing players scenes,
- sending RESTful requests from Unity3D application.

Sculpic will soon be available from Google Play store on Android.