Introduction to
NAVERLib v1.2

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NAVERLib

- application, library, framework
- network centric modular architecture
- support XML script
- based on OpenGL Performer, VRPN, VirtualPhysics, DVTS
- common platform of RCS

Specification outline of RCS

- image based avatar node
- multimedia streaming
- physics simulation
- haptics integration
- mobile user interface integration
- integrated scene graph description
- interaction scripting

NAVERLib v1.1.3		NAVERLib v.1.2
nvmCollision	➔	Obsolete
nvmSharedState	➔	Obsolete
nvmLoader	➔	nvmLoader
nvmDisplay	➔	nvmDisplay
nvmScenario	➔	nvmScenario
nvmStereoFrustum	➔	nvmASVF
nvmSoundManager	➔	nvmSoundManager(1.2β)
nvmDeviceManager	➔	**nvmDeviceManager** **nvmEventManager** **nvmPhysics** **nvmStreaming**
nvmInteraction	➔	Next release
nvmSmellManager	➔	Next release

NAVERLib v1.2β

- nvmDSSM
  - dynamic state sharing between clusters
  - asymmetric server/client structure
- nvmAnimation
  - animating nodes including camera path
  - virtual avatar with skinning
- nvmBrowsingBoard
  - extension of nvmStreaming for web browsing
- nvmSoundManager
  - dynamic spatial sound

nvmLoader

- hierarchical scene graph description
- various node types
  - nvModel : model
  - nvDCS : dynamic coordination system
  - nvLightSource : light properties
  - nvGeoSet : a set of primitive geometries
  - nvLOD : level of detail
  - nvBillboard : a plane rotating to follow the eye point
  - nvSwitch : select one, all or none of its child node
  - nvText : 3D text node

nvmDisplay

- connect PCs to make a visual clustering system
- CAVE, Reality Studio, Display Wall
- master-slave structure
- scene graph : defined in each local PCs
- dynamic data : synchronized by nvmDSSM

nvmASVF

- asymmetric view frustum transformation for active stereo
- responsive to dynamic user’s view point

nvmStreaming

- streaming multimedia data
- based on DVTS
- support chromakeying

nvmScenario

- scenario description in XML
- nvScene
  - has its own world(scene graph)
  - consists of several nvCuts
- nvCut
  - initial viewpoint, runtime

nvmEventManager

- dispatches routing values
- conditional routing
- transformation (scaling, offset)
- calls handler callback functions
- Router
  - source : id, value, (equality/inequality condition)
  - (destination : id, value)
  - (handler : id, callback function)
  - (converter : scale, offset value)

nvEventNode

- abstract class for event routing
- managed by nvmEventManager(event node pool)
- SetID
- RegisterValue
  - bool, int, float, double, char, std::string
- RegisterCallback
  - first parameter : itself
  - second parameter : source value
  - runtime type information should be enabled

nvmDeviceManager

- using various peripheral devices in a uniform manner
- manages devices supported by VRPN
  - has arrays of nvDeviceInfo : nvEventNode.
  - registers values obtained by VRPN servers : num_chan, chanval, button, state, dial, sensor, position, velocity, acceleration, ...
- VRPN devices
  - Analog : joypad stick
  - Button : joypad button
  - Tracker : Isense900, SPIDAR
  - Force Feedback : SPIDAR, phantom, motion simulator

nvmPhysics

- Simulating Newton's physics law
  - real time rigid body dynamics
  - based on VirtualPhysics
- Support arbitrary structures
  - particle, single body, articulated system, closed loop
- easy to model dynamic systems
  - generate physics worlds from nvmLoader and pfvmLoader
- collision detection / proximity sensor
  - collision primitives : sphere, capsule, box, terrain
- haptics integration
  - dual simulation LOD : visual/haptic rendering group
  - update rates, collision/contact response model

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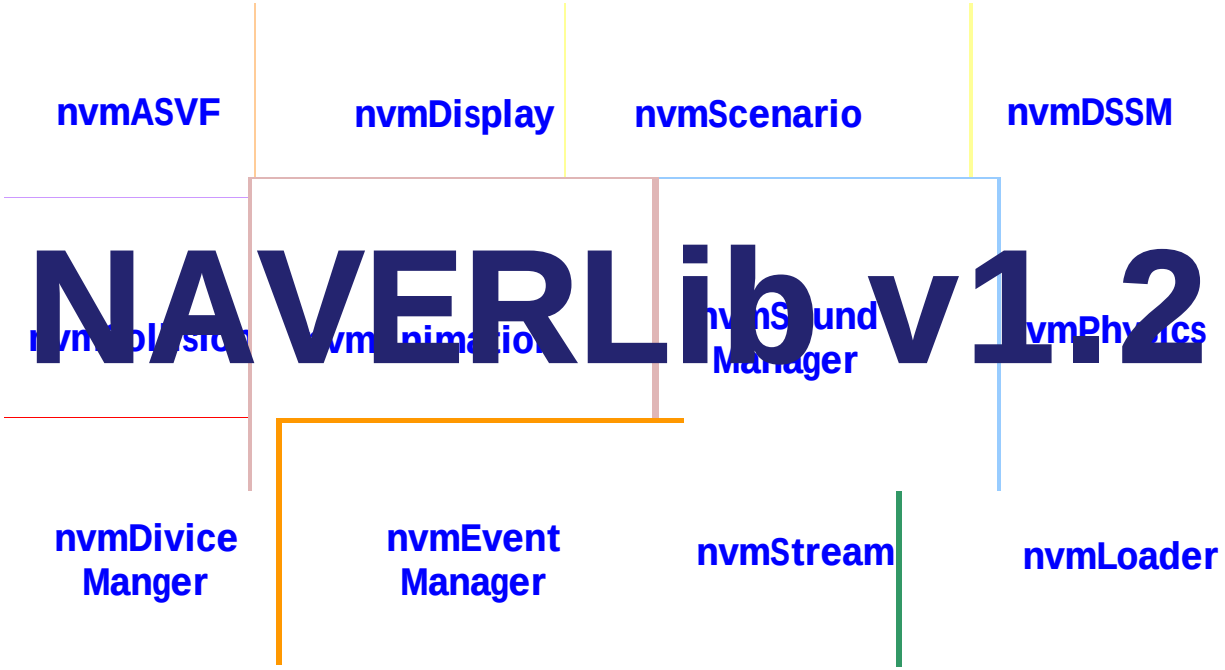

http://naver.imrc.kist.re.kr