



삼성 오픈소스 컨퍼런스

SAMSUNG OPEN SOURCE CONFERENCE

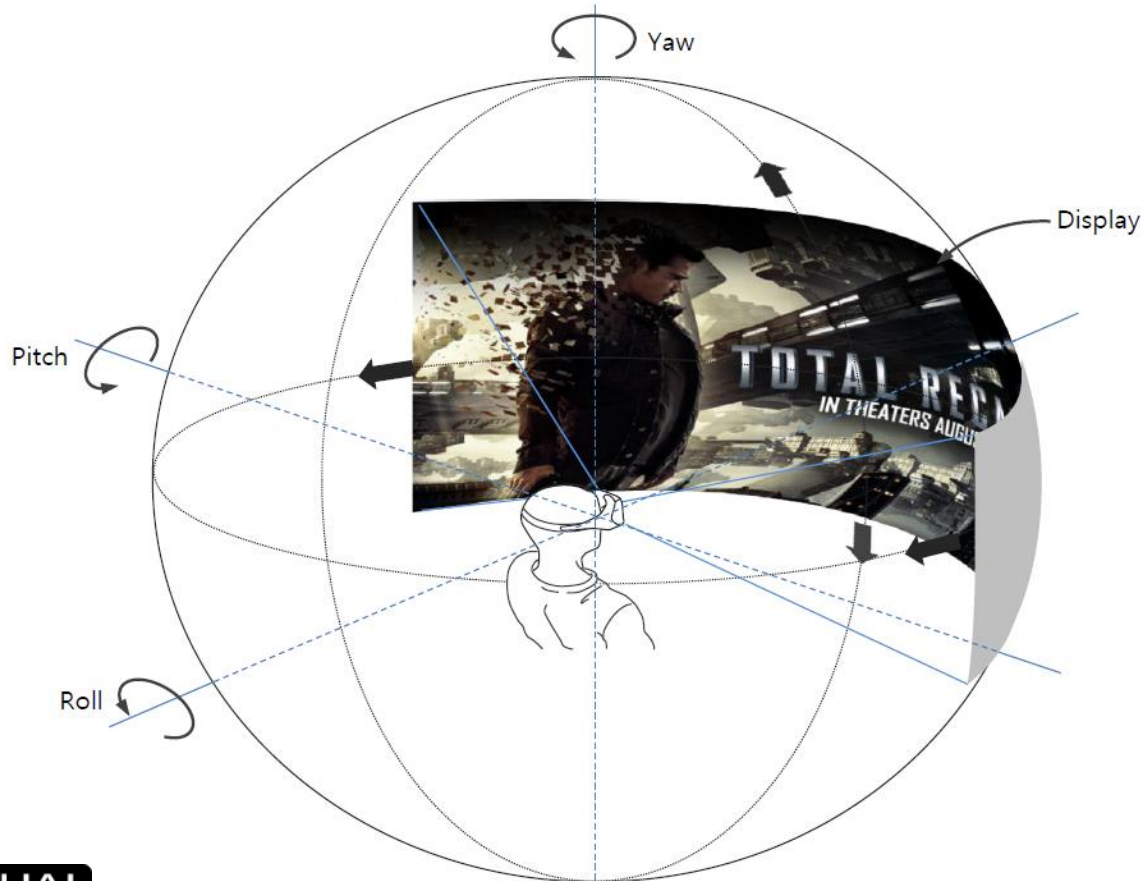
OPEN YOUR UNIVERSE WITH SOSCON



Gear<sub>VR</sub>

**F**ramework

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Samsung Mobile Graphic R&D Group



**A three-dimensional, computer generated environment which can be explored and interacted with by a person.**  
– [vrs.org.uk](http://vrs.org.uk)



**Gear**<sub>VR</sub>  
Framework

*“The Gear VR Framework (GearVRf) Project is an open source collaboration based on the GearVRf open-source rendering library for application development on VR-supported Android devices.”*

Open source starting from 2015.02  
<http://www.gearvrf.org>

Samsung Mobile Graphic R&D Group  
Samsung MPS Lab ( San Jose )

80 more developers playing now.

## Motivation

*“Simple, Easy, For beginner of Virtual Reality”*

### *Without...*

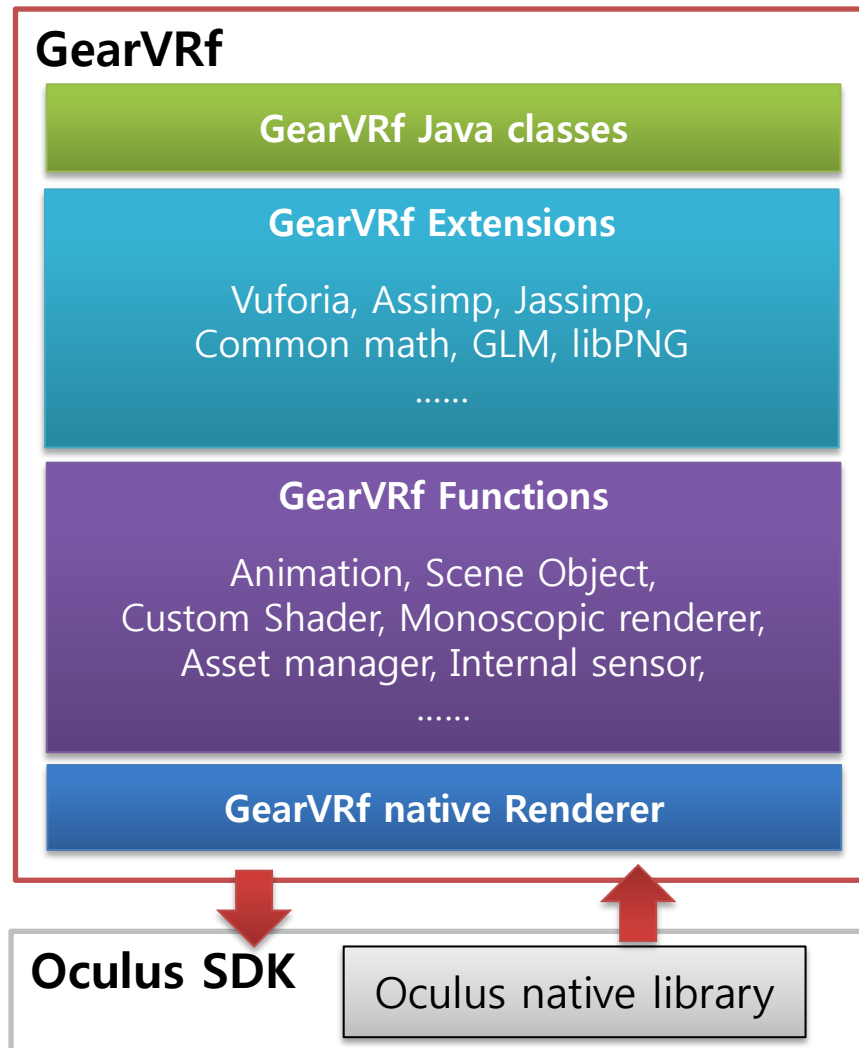
3D Knowledge  
OpenGL  
Native language  
Render Engine  
Sensor calculation

### *Even*

Samsung GearVR

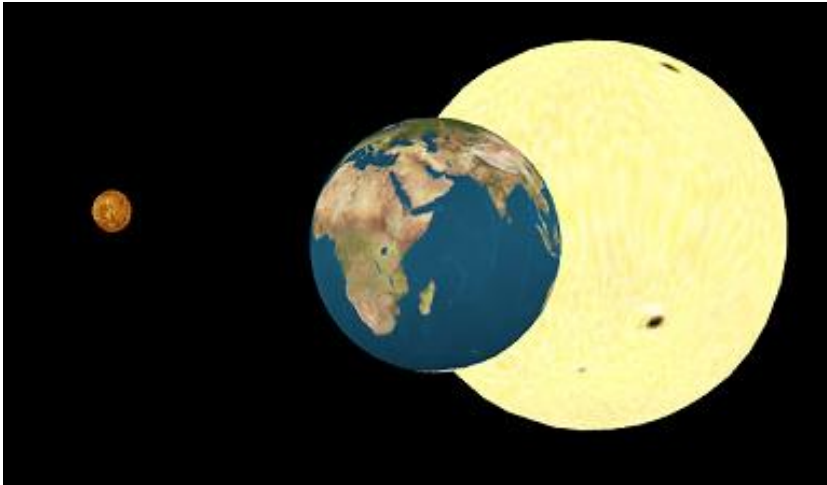
### *With...*

Easy Java API  
3D Model importer  
Animation  
Math Library  
Shader maker  
Monoscopic Renderer  
Various Scene Object  
.....



- Hide renderer
- Easy API
- Various extensions
- helper classes





## Solar System

- Sphere mesh
- Bitmap texture
- Custom animation
- Mono / Stereoscopic



## GVR Cinema

- “Solar system” + ...
- Complex model
- Custom shader for radiosit
- Video for streaming texture
- HW camera texture for pass through
- Stereo texture

## Simple Gallery

### 0. Modify manifest

[.../GVRf/Sample/simple-sample/AndroidManifest.xml](#)

### 1. Create Activity

[.../gearvrf/simplegallery/GalleryActivity.java](#)

### 2. Create Script ( ViewManager )

[.../gearvrf/simplegallery/GalleryViewManager.java](#)

### 3. Add your own Object ( 3D Model) , or Create Object via Object class.

[.../simplegallery/GalleryViewManager.java](#)

### @ Add Animation

[.../gearvrf/simplegallery/GalleryViewManager.java](#)

### @ Add your own Shader

[.../gearvrf/simplegallery/CustomPostEffectShaderManager.java](#)



## So many...

<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/collision>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/eye-picking>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-cubemap>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-litshader>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-outlinesample>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-pickandmove>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-sample>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-test-screenshot3Dresult>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-testcube>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-video>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvr-vuforia>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrbulletsample>  
[https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrcockpit\\_v1\\_5\\_0](https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrcockpit_v1_5_0)  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrexposeapisample>  
[https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrf\\_controls\\_sample](https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrf_controls_sample)  
[https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrf\\_keyboard\\_sample](https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrf_keyboard_sample)  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrjassimpmodelloader>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvropacityanigallery>  
[https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrpanoramasstereoimagesample\\_v1\\_5\\_0](https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrpanoramasstereoimagesample_v1_5_0)  
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<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/gvrtextviewsample>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/lod-test>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/model-viewer>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/nonglthreadupdate>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/scene-objects>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/simple-gallery>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/simple-sample>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/solar-system>  
<https://github.com/Samsung/GearVRf/tree/master/GVRf/Sample/transparency-test>



## NEWS -- The results from the latest hackathons are in !

The AT&T VR Hackathon was in San Francisco from June 19th and June 20th at Galvanize, The Modern Tech Campus, 44 Tehama Street in San Francisco.

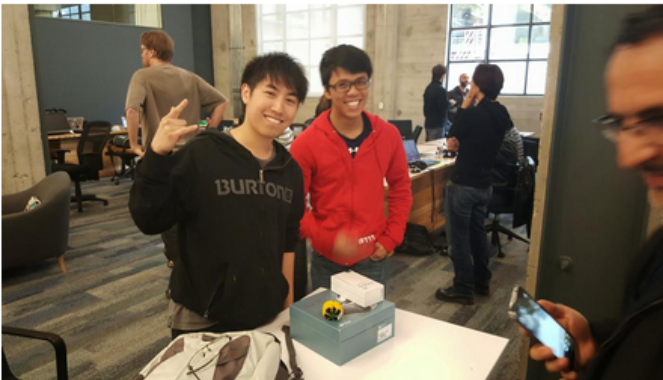
- Akshay Mhatre, Wei Low, Matt Lodes, and Shweta Raje wrote a real time speech recognizer using GVRCameraViewSceneObject and Google's speech recognition service.
- Project Link: <https://github.com/girllovesrobots/sffc>

The VRHackathon.com 2015 Seattle Hackathon was from June 19th to June 21st in Seattle, WA.

- Cesar Sanchez and Chris Peri created a basketball spinning game. How many balls can you keep spinning.
- Working on adding it to the GearVRf repository under VRHackathons/.

The VRHackathon.com 2015 San Francisco Hackathon was from May 22 and May 24 at Galvanize, The Modern Tech Campus, 44 Tehama Street in San Francisco.

- **Congratulations to Ian Macalinao and Chee Loong Soon !!!**



They won THE 2015 *Golden Hacky* for the best GearVRf application that displayed a map of San Francisco with live positions of Muni buses and trains, which allowed you to zoom in and out of an area of interest.  
(oh yeah, they also won a Samsung Galaxy S6 phone and a Gear VR Innovator Edition HMD).

For details about future VR Hackathons, <http://vrhackathon.com/>

## Roadmap

*Hierarchical bounding volume culling*  
*Support for all the different shaders Assimp supports*  
*Support for Assimp's animations*  
*Support for multiple lights*  
*Support for shadows*  
*Support for instanced objects*  
*State sorting*  
*Draw call batching*

**Open source, open source.**



**<http://www.GearVRf.org>**

Gear VR Framework under the Apache 2.0 license  
<http://gearvrf.org/bin/view/GearVRF/GearVRfLicense>



THANK YOU!