Icewave

Lorenzo La Spina, Lukas Prantl, Tobias Weiher

Theme: Munich

- Unique place for Munich
- Technical aspect of the water
- Limited area of action
- Thinking small!

- → Wave Rider Game with focus on the graphical and simulational part
- → Creating game with a custom engine
 - Tsunami Game Engine



SURFING SIMULATION

BIG TDEA BULLSEYE PHYSICALLY BASED WATER TURBULENT LIQUID RENDERING

Simulation Part

- Good looking shape of wave
- Precomputed high resolution waves for fluid simulation
- At runtime particle generation of foam and spray
- Realistic interaction between surfboard and water considering buoyancy and flow forces



Graphics Part

- Hybrid visualization technique
- Raytraced water using implicit surface representation
- Two step lighting calculation
- Physically based water/environment interaction
- Rasterized environment for the scene





Wii Balance Board

- Pro: Accurate, possibility for minigames
- Con: Not easily accessible, lack of intuitive center of mass perception

Steam Controller

- Pro: Commercially accessible, gyroscope
- Con: Huge overhead with SDK

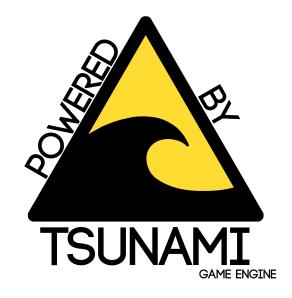
Beagle Board

- Pro: Accessible at the university, experience in using
- Con: No gyroscope, not commercial, usability ergonomics



Tsunami Game Engine

- Combining Simulation, Graphics and Input
- Custom game engine written in modern C++11
- Rendering and Physics using DirectX11 and CUDA
- Multithreading support
- Composition oriented scene management



Development Schedule

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o scene structure	19.10.16	19.10.16	scene structure [] [] [Lorenzo]	0		21.12.16	(Tobias)
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o physical based wate	er 19.11.16	20.11.16	physical based water with raytracer		online tournament m 25.01.17	25.01.17	online tournament mode
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Development Schedule

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Thank you!

Questions?

