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Cartographic Symbols for 3D Visualization in Facility Management Domain



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Overview

- Input data
- Theoretical background of 3D map symbols
- Practical problems
- Comparison of two variants of symbols
- Future work



Why 3D visualization ?



This problem is also described by Du & Zlatanova (2006)

Map symbols

- Map symbols are in classic cartography divided into 3 groups:
 - point (figurative)
 - linear
 - areal
- In 3D visualization *volume* symbols
- Differences between these three categories are relatively fuzzy
 - E.g. point symbols can also have a volume
 - Billboards consist of 2D image or images





Comparison

- Size on disk [baits]
 - ArcScene (SXD) files
 - X3D data

			Class room		Boiling room			
	2D symbols		3 129 344		4 751 360			
	3D symbols		4 120 576		5 292 032			
				Boiling	room Class room			
Poir	\ †	3D symbols		5 095 424		5 533 696		
symb	ols	2D symbols		49 152		65 536		
Other (volume) symbols				9 359 360		1 081 344		
3D / SUM (3D+Other)				35%		84%		
2D ,	/ SL	JM (2D + C	Other)		1%	6%		
		2D / 3D			1%	1%		

Speed of rendering in web browser (through X3DOM library)

http://tools.pingdom.com

	Class room			Boiling room			
	Requests	Time[s]	Size [MB]	Requests	Time [s]	Size [MB]	
2D symbols	10	1,39	1,5	14	2,74	9,4	
3D symbols	10	2,81	6,8	8	1,54	14,3	

Future work

- Improve localization c
 - Prevent hiding of point
- Use vector (SVG) symb
- Testing of user cogniti
 - Out hypothesis: Billboar they are same as in 2D r
- Developed localization
 - Augmented or virtual rea



Resources

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