

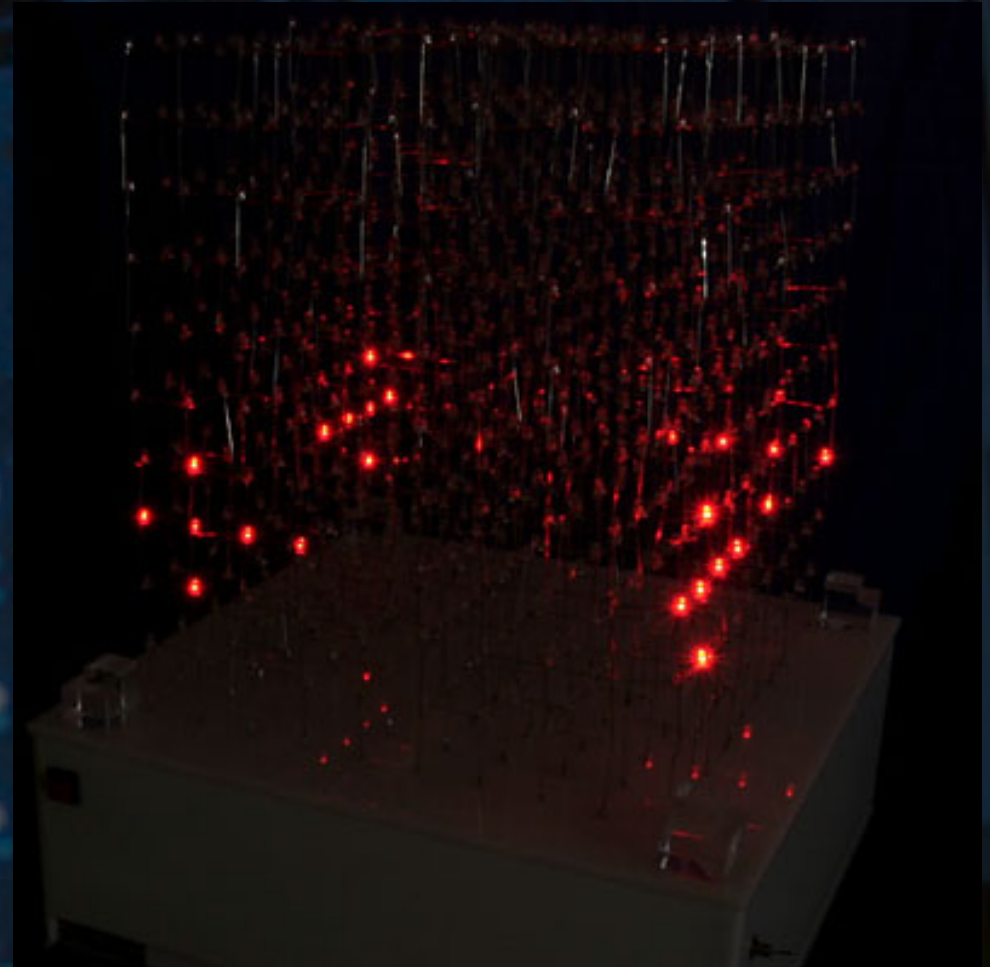
A volumetric 3D LED display

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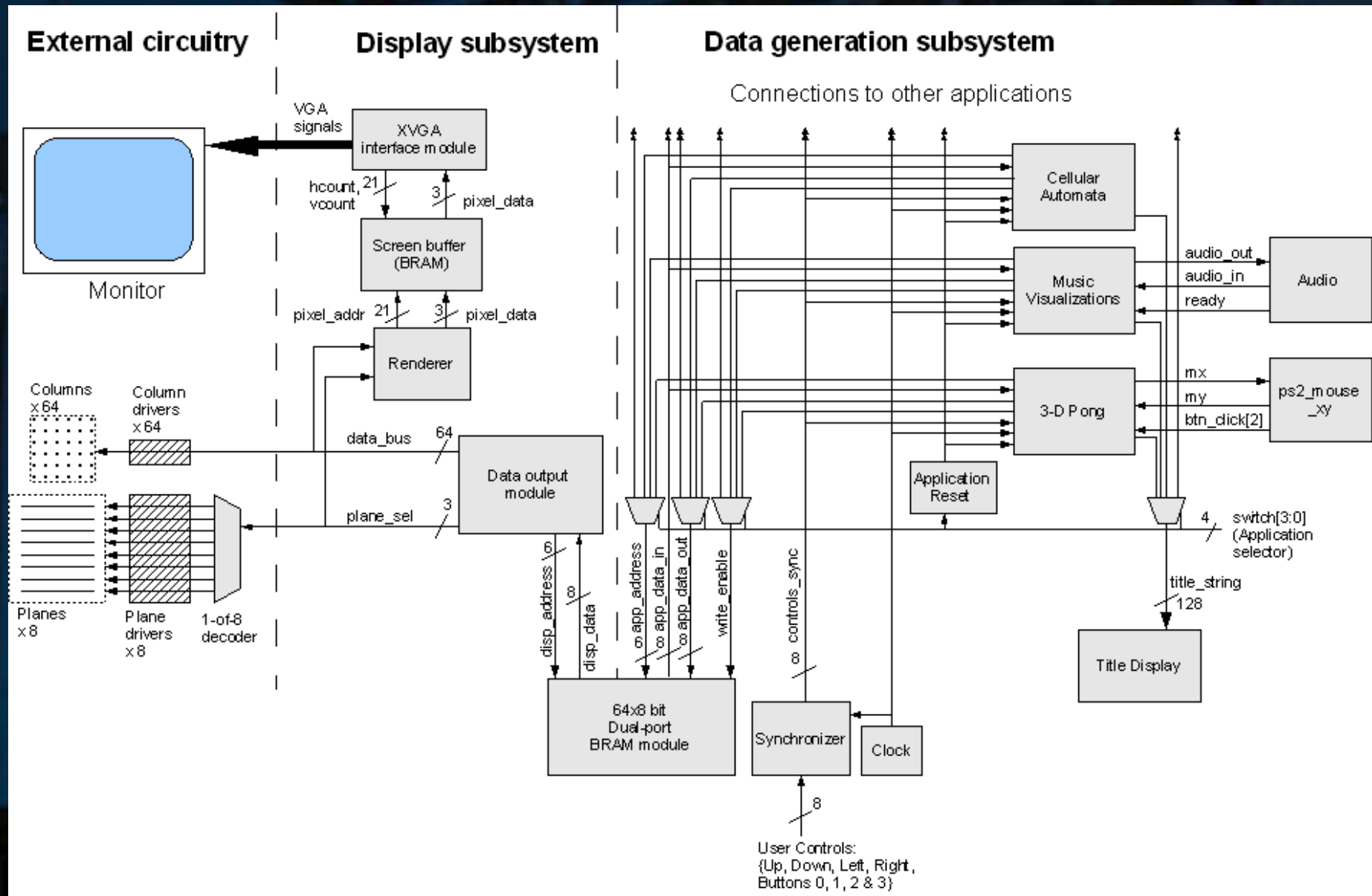
Tuesday 15th November 2005

Why?

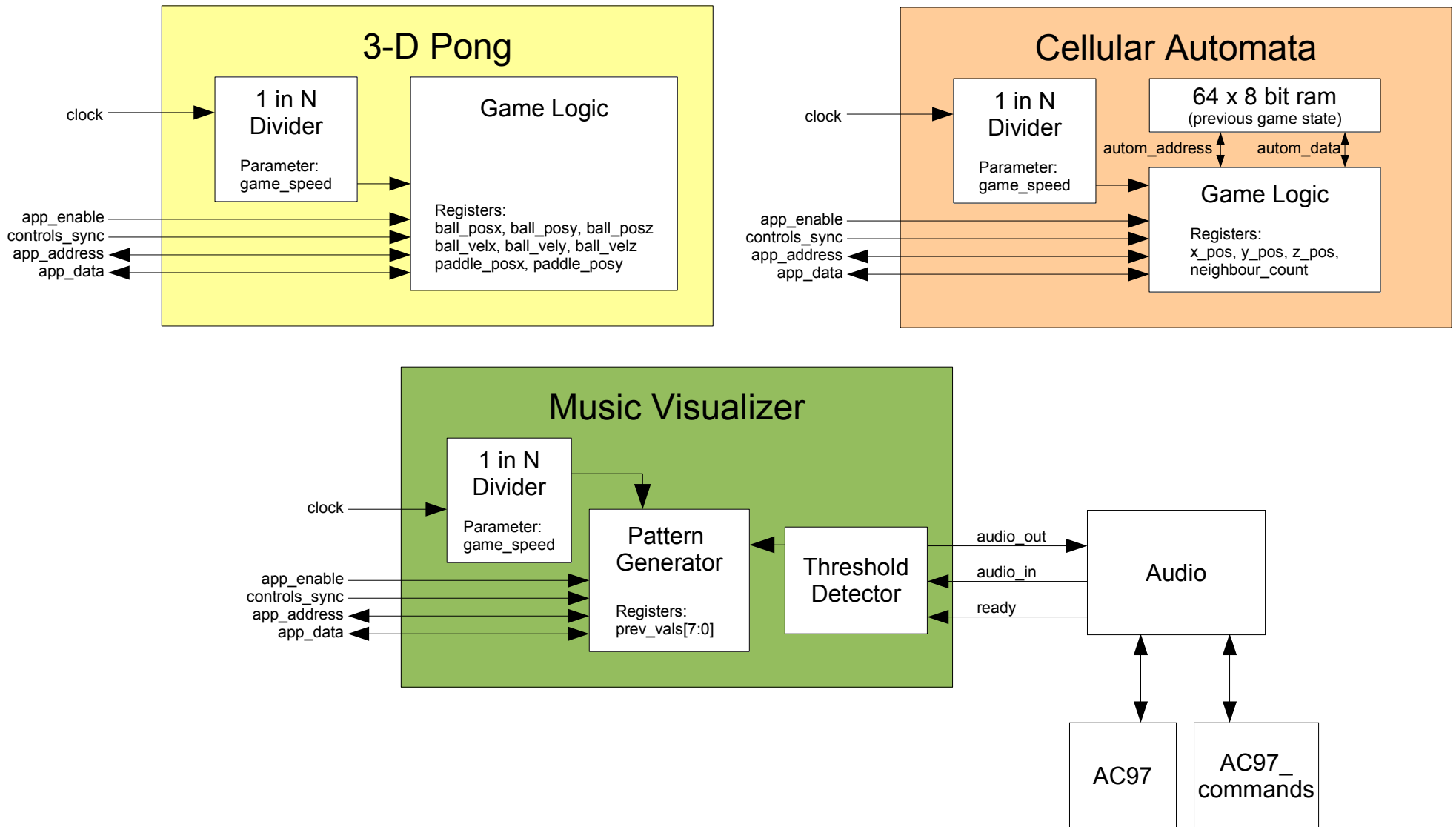


True volumetric 3d

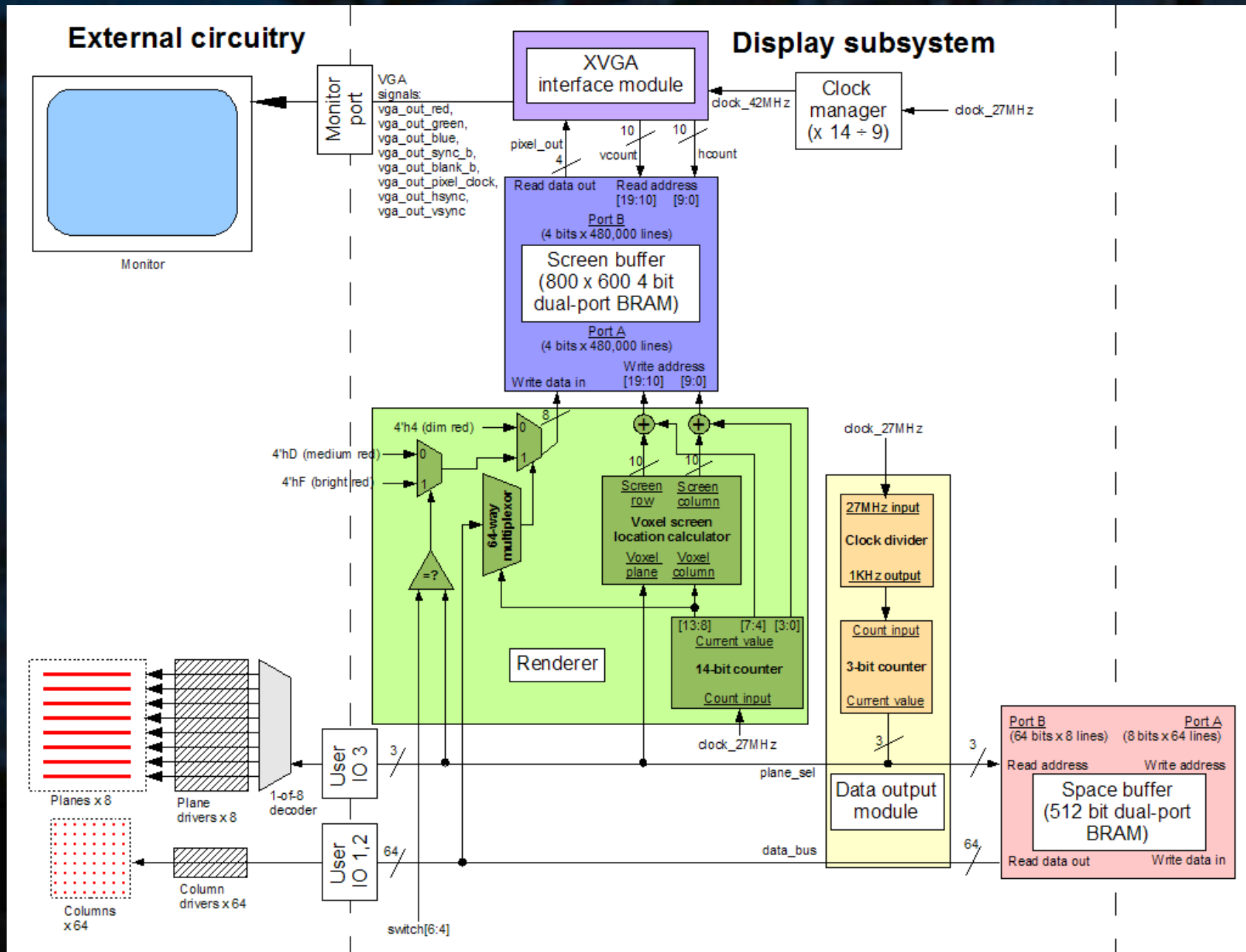
Overall block diagram



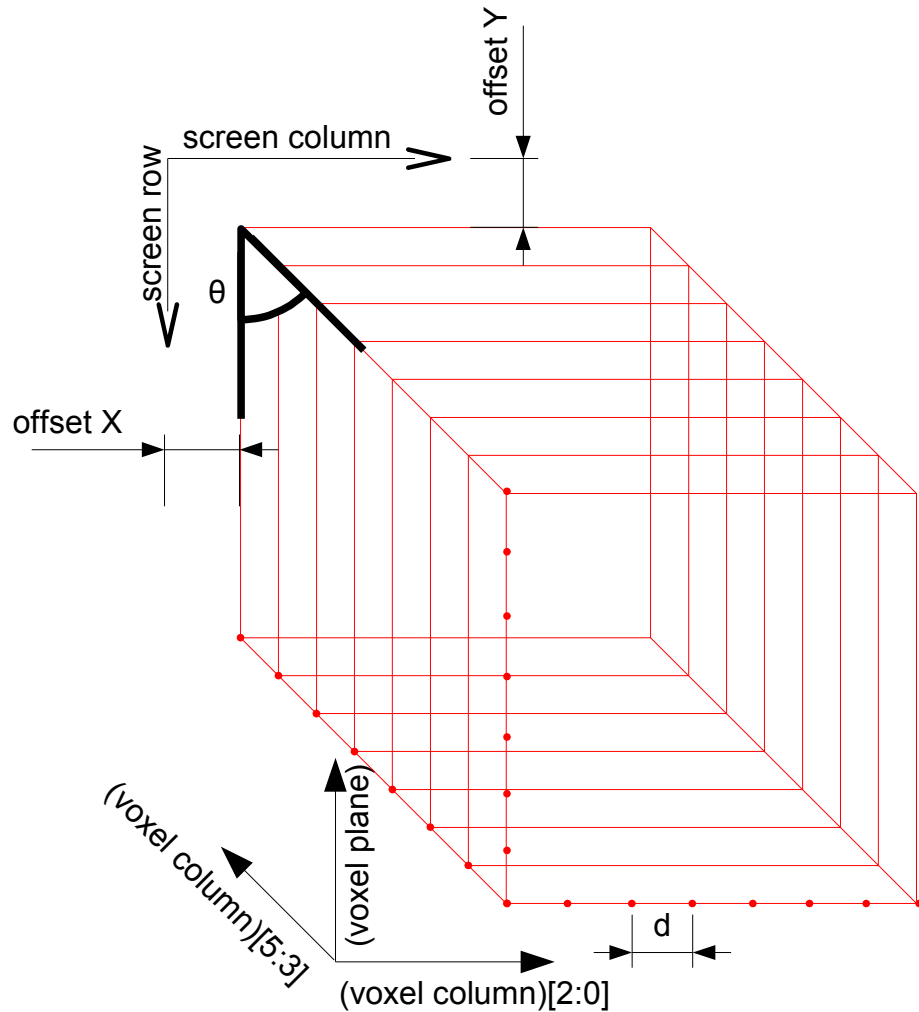
Application modules



Displaying the results



Orthographic 3D

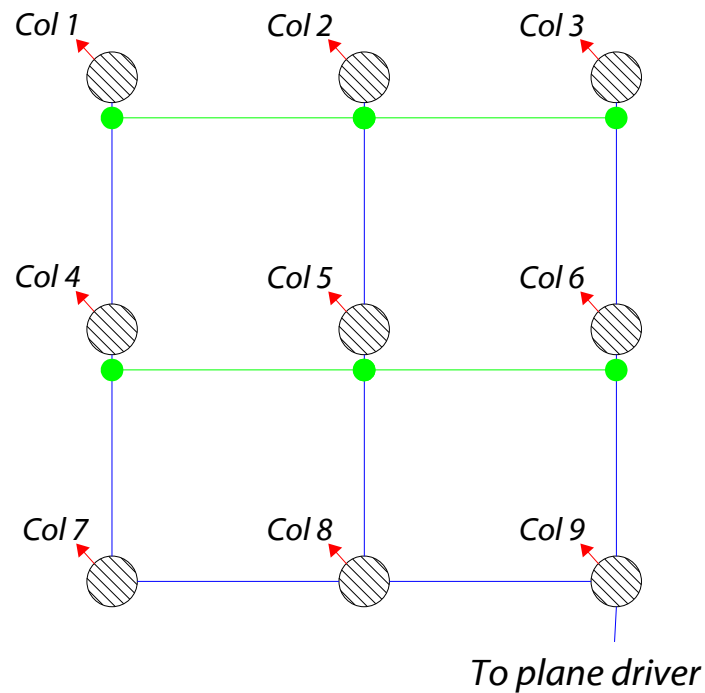


Voxel screen location calculator:

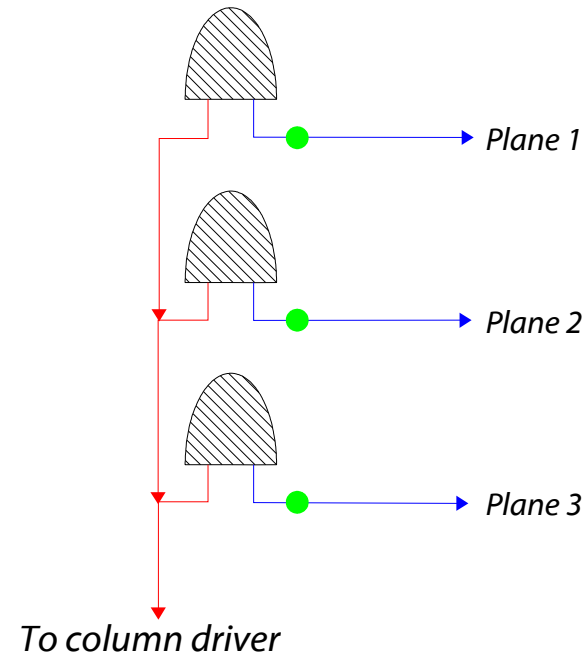
$$\begin{aligned} \text{(screen column)} = & \\ & \text{(offset X)} + \\ & d \cdot \text{(voxel column)[2:0]} + \\ & d \cdot \sin \theta \cdot (7 - \text{(voxel column)[5:3]}) \end{aligned}$$

$$\begin{aligned} \text{(screen row)} = & \\ & \text{(offset Y)} + \\ & d \cdot (7 - \text{(voxel plane)}) + \\ & d \cdot \cos \theta \cdot (7 - \text{(voxel column)[5:3]}) \end{aligned}$$

LED cube construction



Horizontal plane



Vertical column

Issues:

- Brightness/duty cycle
- View angle

Project plan

Day	Date	Organised events	Submission deadlines (5pm)	David	Lawrence
Monday	07/11/05			Plan/presentation/code	Plan/presentation/code
Tuesday	08/11/05			Plan/presentation/code	Plan/presentation/code
Wednesday	09/11/05			Plan/presentation/code	Plan/presentation/code
Thursday	10/11/05			Plan/presentation/code	Plan/presentation/code
Friday	11/11/05	Block diagram conference		<i>Plan complete</i>	<i>Plan complete</i>
Saturday	12/11/05				
Sunday	13/11/05			Space buffer and data output module	3D Pong
Monday	14/11/05	Design presentations		Space buffer and data output module	3D Pong
Tuesday	15/11/05	Design presentations		VGA output	3D Pong
Wednesday	16/11/05	Design presentations	Presentation slides	VGA output	3D Pong
Thursday	17/11/05			VGA output	3D Pong
Friday	18/11/05	Checklist conference	Checklist	<i>VGA output working</i>	<i>3D Pong working</i>
Saturday	19/11/05				
Sunday	20/11/05			Build first plane	Cellular automata
Monday	21/11/05			Build first plane	Cellular automata
Tuesday	22/11/05			Build first plane	Cellular automata
Wednesday	23/11/05				
Thursday	24/11/05				
Friday	25/11/05				
Saturday	26/11/05				
Sunday	27/11/05			<i>First plane working</i>	Cellular automata
Monday	28/11/05			Build planes	<i>Cellular automata working</i>
Tuesday	29/11/05			Build planes	Music visualisations
Wednesday	30/11/05			Build planes	Music visualisations
Thursday	01/12/05			Build planes	Music visualisations
Friday	02/12/05			Build planes	Music visualisations
Saturday	03/12/05				
Sunday	04/12/05			Integrate/debug	<i>Music visualisations working</i>
Monday	05/12/05			Integrate/debug	Integrate/debug
Tuesday	06/12/05			Integrate/debug	Integrate/debug
Wednesday	07/12/05			Integrate/debug	Integrate/debug
Thursday	08/12/05			Integrate/debug	Integrate/debug
Friday	09/12/05			Integrate/debug	Integrate/debug
Saturday	10/12/05				
Sunday	11/12/05			Report writing	Report writing
Monday	12/12/05	Demos and videotaping		Report writing	Report writing
Tuesday	13/12/05	Demos and videotaping		Report writing	Report writing
Wednesday	14/12/05	Demos and videotaping	Final report		
Thursday	15/12/05				
Friday	16/12/05				



Any questions?