

Tuning SDAZ to Address Overshooting and Course-correction Problems

Final Presentation

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Recap

SDAZ: Speed Dependent Automatic Zooming

Control Pan and Zoom with only 1 form of input, and 2 degrees of freedom

User tends to overshoot targets and can't correct very well

=> Two Step Automatic Zooming (TSAZ)

Changes to Project Milestones

 Can't load satellite map data

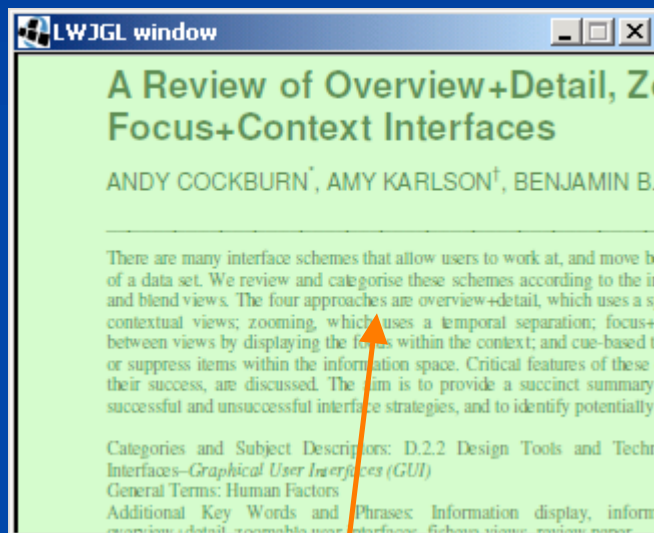
⇒ Switch to a very large document instead

⇒ Decrease the screen size to create an analog to the 2D map navigation task

2. On track to finish the final report on Dec 16

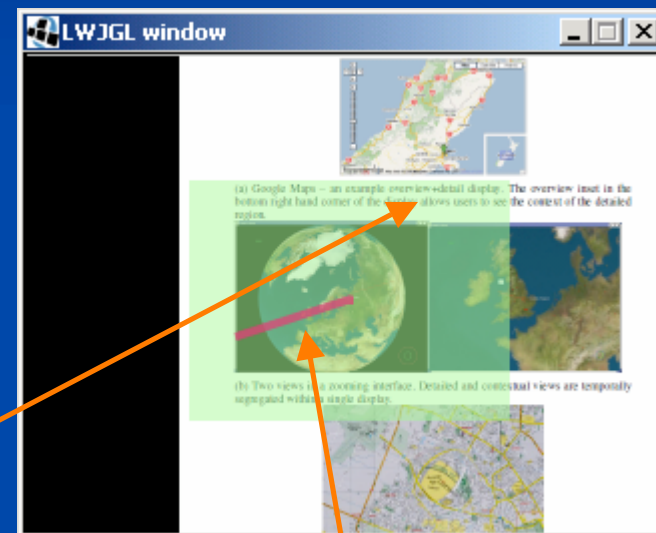
A screen shot of the demo

Zoomed-in



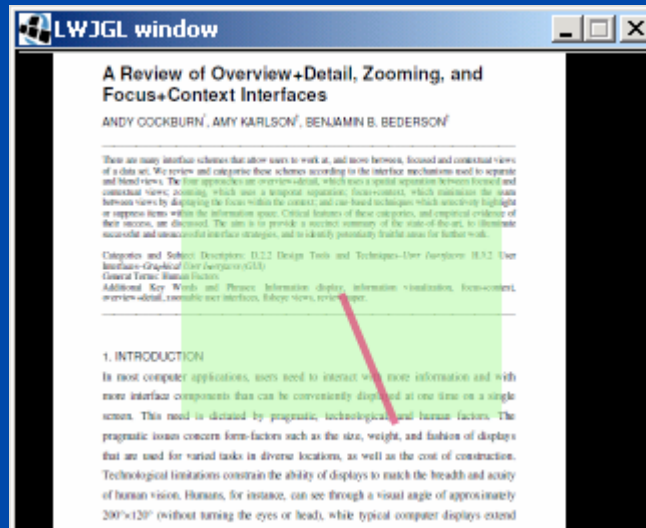
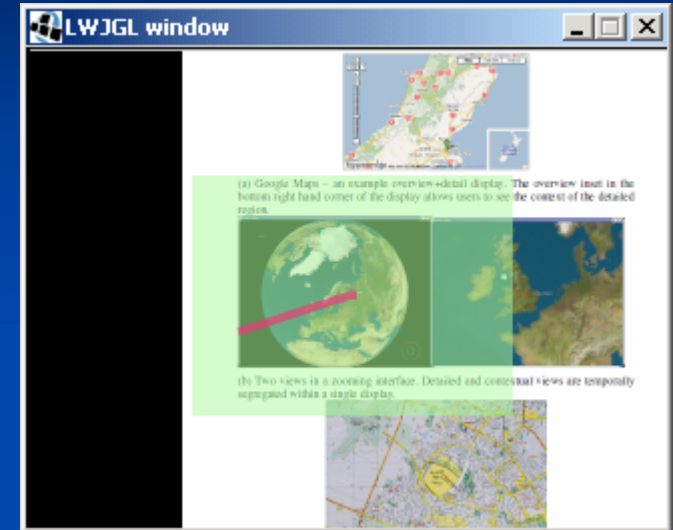
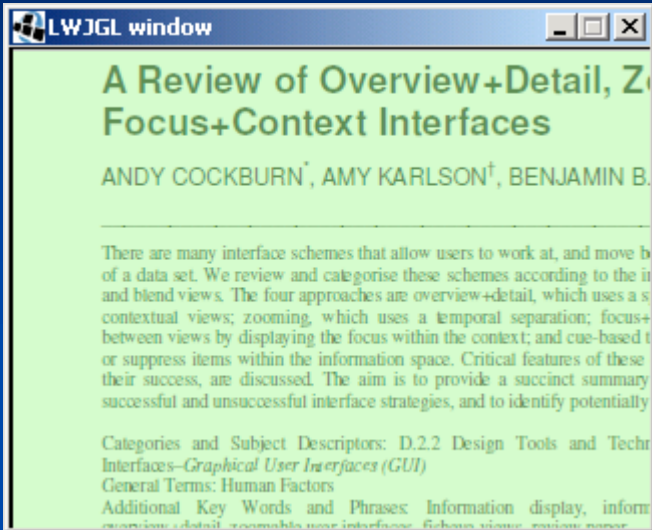
Highlighted Focus
Area indicates altitude

Hold left mouse button
and scroll for AZ



Mouse Displacement

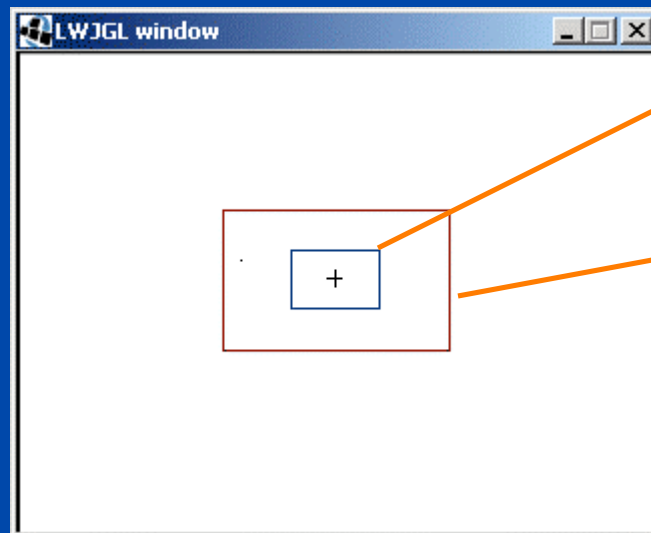
The Intention of Zooming Out



Zoom-level no longer changes during course & speed adjustments

No Intention of Zooming

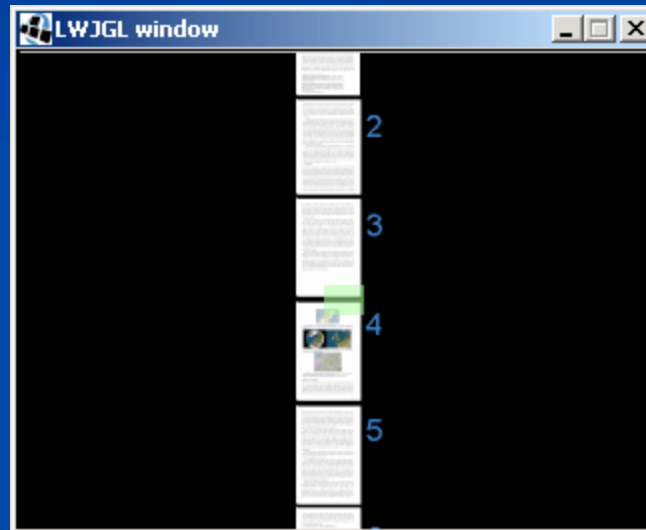
1. Like SDAZ, small displacement is ignored for zooming purposes
2. Unlike SDAZ, small displacement can still cause panning, only big displacement causes a zoom



Panning Starts

Zooming Starts

The Calmness Before Zooming In



There is no displacement bar, the mouse button isn't hold down... but the user can rest

Speed-independent Auto Zoom-in

1. From zoomed-out state, press and hold the mouse button again will start zoom-in
2. Zoom-in speed independent from mouse speed
3. Follow the time guideline of $0.8-1s \Rightarrow 1s$
4. Zoom-in speed not constant but follow animation convention

Slow-Fast-Slow

Future Work

1. Improve the Usability Testing capability of the demo (currently only allow recording time taking to finish an arbitrary task)
2. Run some Usability Test
3. Overcome hurdles in the cartography application
4. Develop a touch screen analog of this mouse control scheme

References

- SDAZ - Igarashi and Hinckley (2000)
- 3D Point of Interest - Mackinlay, Card, and Robertson (1990)
- Depth Modulated Flying – Ware, and Fleet (1997)
- Bi-manual Zoom/Pan - Bourgeois, and Guiard (2002)
- OrthoZoom Scroller - Appert, and Fekete (2006)
- Around the World In Seconds With SDAZ – Cockburn, Looser, and Savage (2003)
- Cognitive Cost of Visual Comparison – Plumblee & Ware 2006

Q&A

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