



One Laptop per Child

Or the project formerly known as
The \$100 PC

The project

- Started by the MIT Media Lab
 - An initiative of Nick Negroponte
- Aim is to provide computing facilities to children of developing countries
- Now one of some 30 projects
- But OLPC has the highest profile

Novel features

- Very low power consumption ($\leq 7W$)
- Can be powered by car or truck battery
- Can be charged by hand
- High resolution screen for indoor or outdoor use
- Wireless Mesh network
- Camera and audio
- Linux open source software

Why those features?

- Estimated that >60% of target population do not have access to continuous electric power
- Many classrooms are outdoors
 - Traditional laptops cannot be easily read out-of-doors
- If one machine on wireless mesh has internet access, then all could have

The hardware



Hardware details

- AMD Geode GX500 processor
 - 366MHZ clock speed
- 128MB RAM
- 512MB Flash Drive
- Marvell Mesh Wireless card
- 7.5" screen – 200 dpi
 - 1200 x 900 Black and White
 - 800 x 600 Colour
- SD slot

Rotating the screen



Book Mode



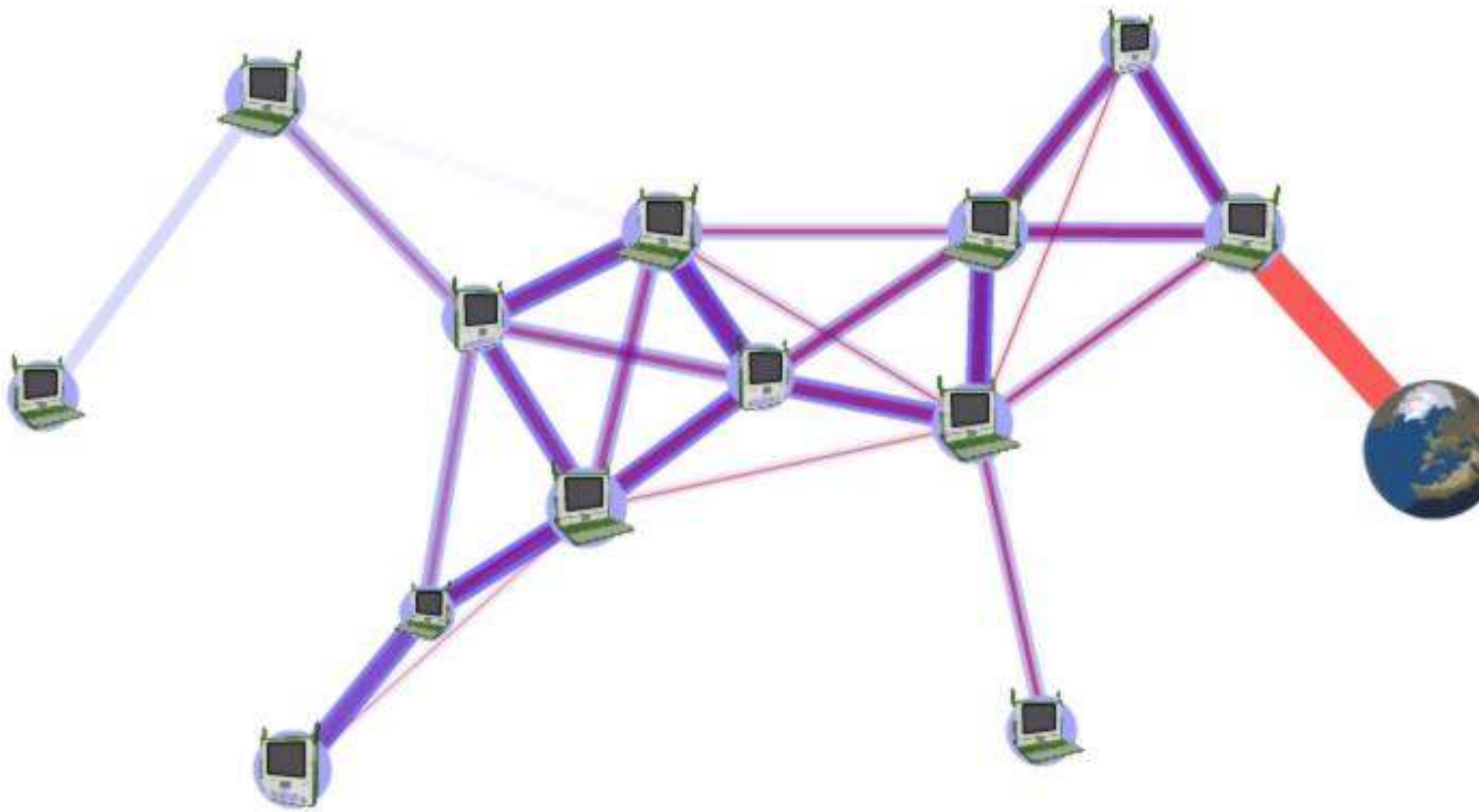
More about the display

- 7.5" screen – 200 dpi
 - 1200 x 900 Black and White
 - 800 x 600 Colour
- Added display controller (DCON)
 - Allows display while CPU sleeps
 - .5 watt power consumption
- Black and White mode - reflected light
- Colour mode – LED backlight

More about the wireless mesh

- Supports 802.11s draft standard
- Can send/receive/pass through data
- Range target is 600m
 - Tested at up to 1.5km with good reception
- Ideally would connect with local server for internet access
- Works with CPU in sleep mode
- Power consumption .5 watt

Mesh in operation



More about power management

- Total power consumption ~7 watts
- No program running and no keyboard/button action, processor sleeps (S3)
- Fast resume from sleep state – millisecs.
- Battery is NiMH (not exploding Lilon)
- Hand charger – three types
 - Use to charge ratio aim is 10:1
- Where power available use gang charger and spare batteries

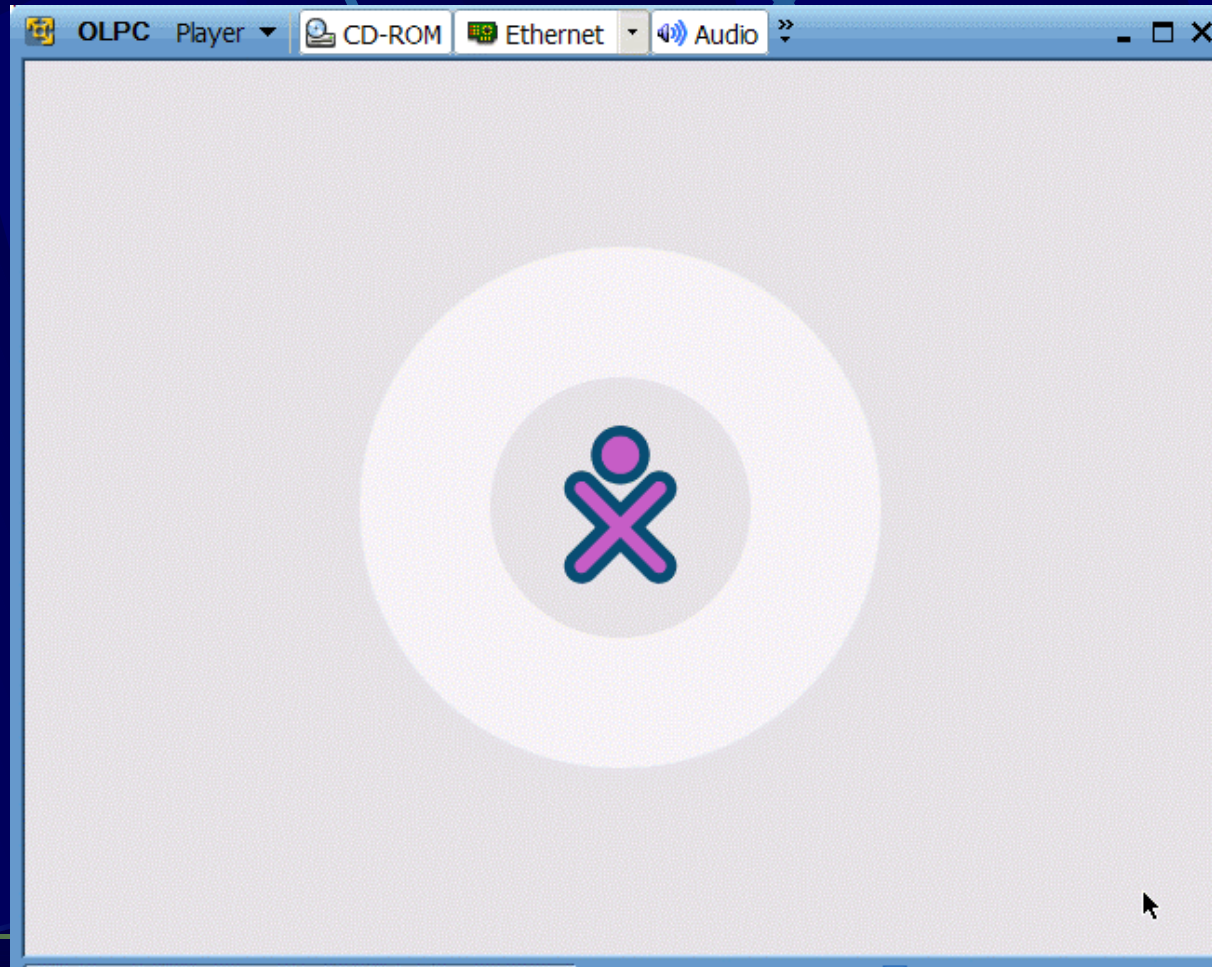
String Charger – first view



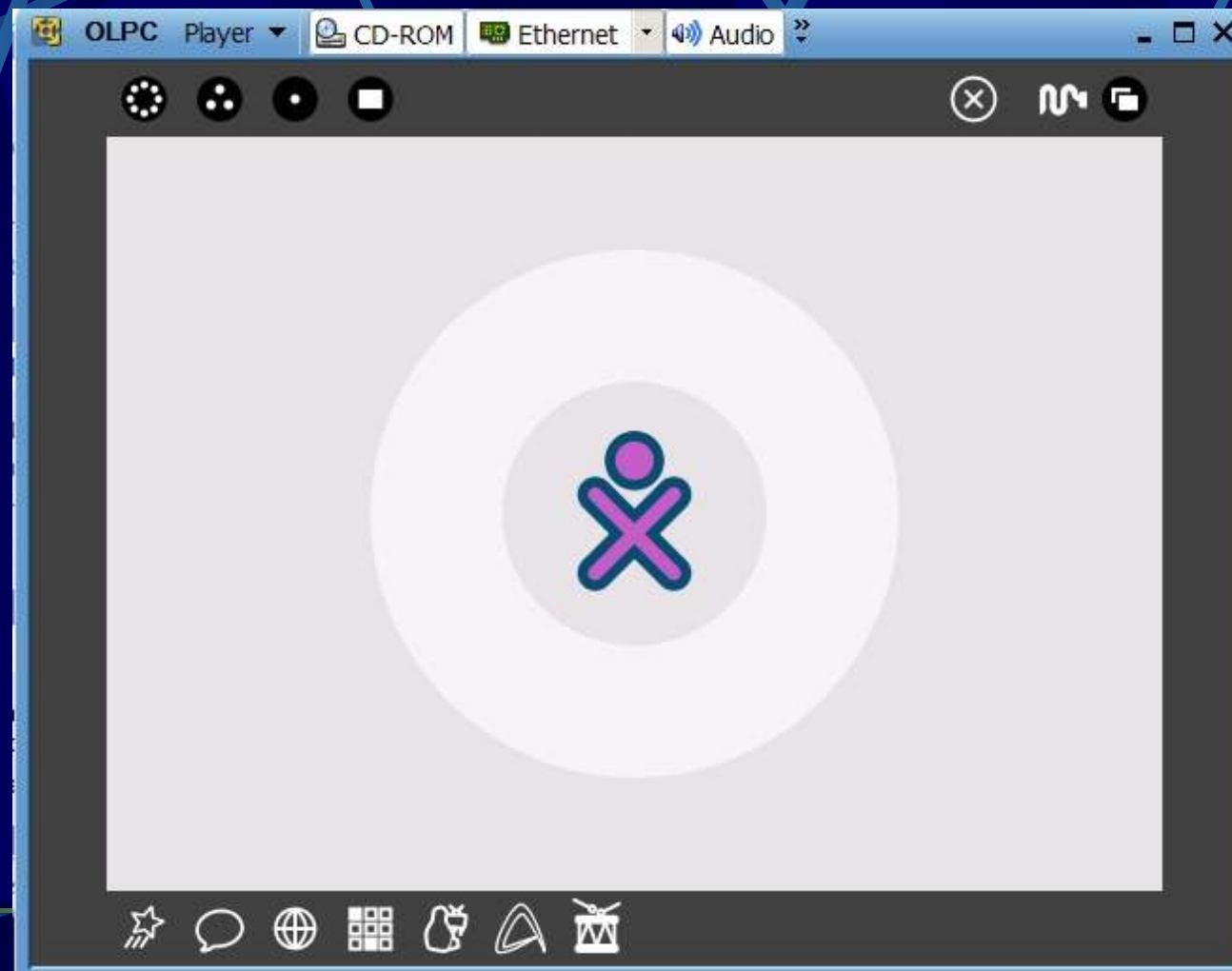
Software details

- Modified Red Hat Fedora platform
- “Sugar” environment
 - Written in Python
- Mozilla web browser
- Abiword word processor
- Chat facility – using camera and audio
- Logowiki – comb’n. of Logo and Wiki

Sugar environment



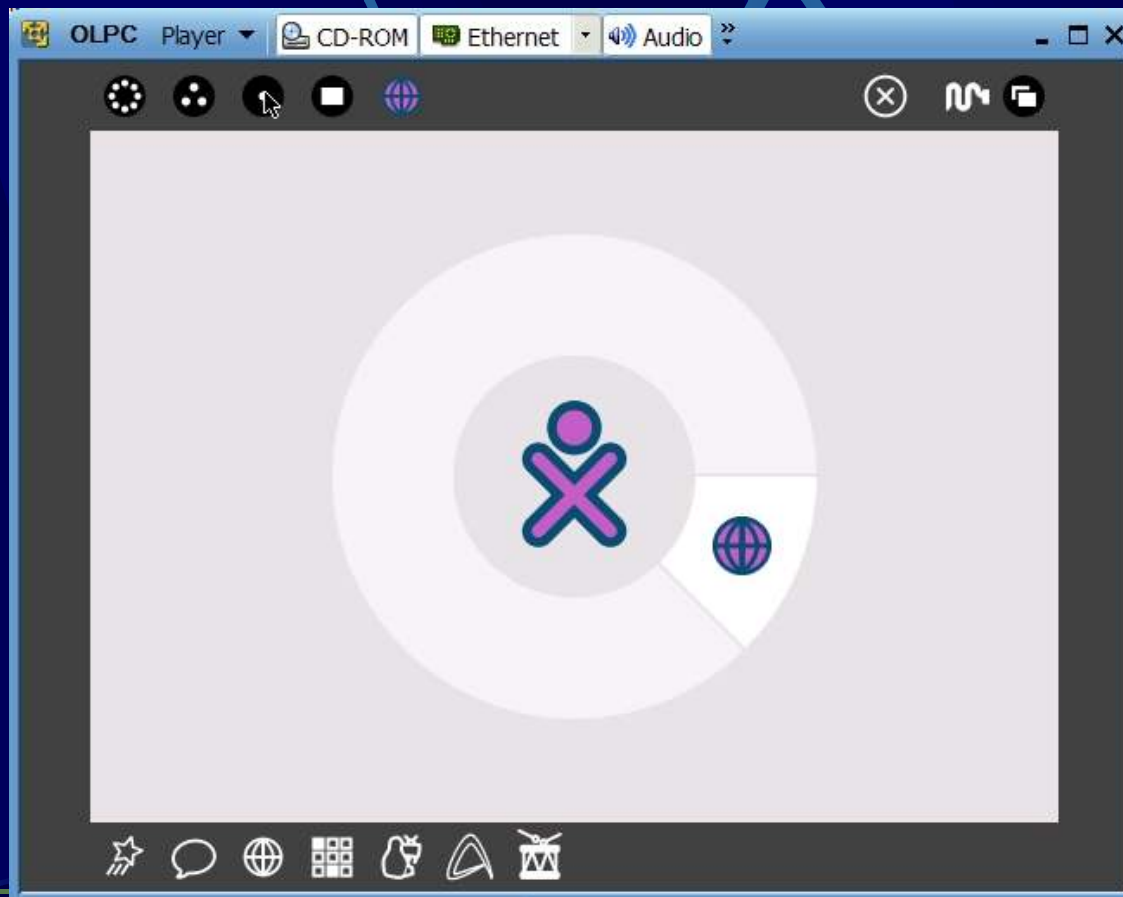
Move cursor to an edge



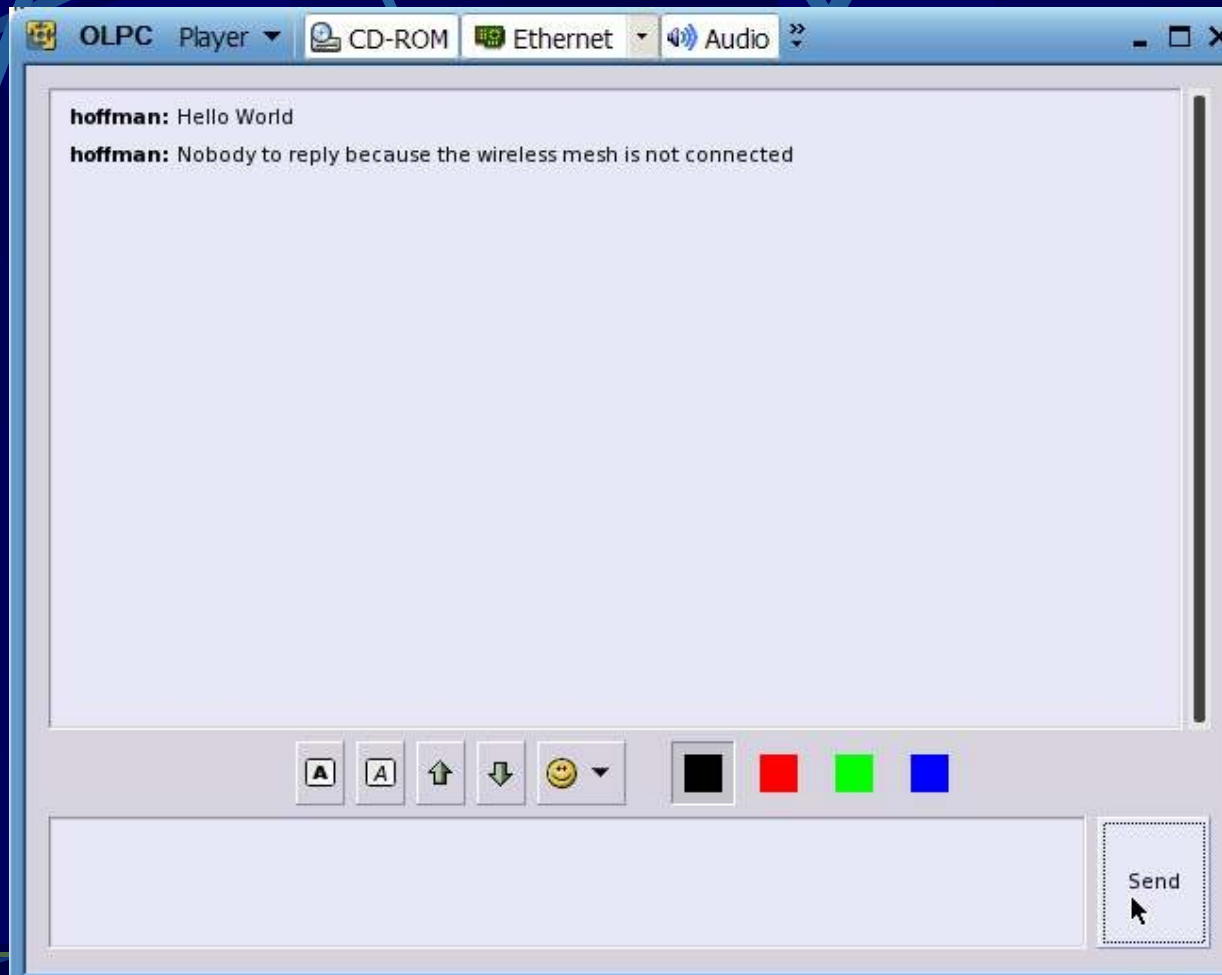
Open the browser



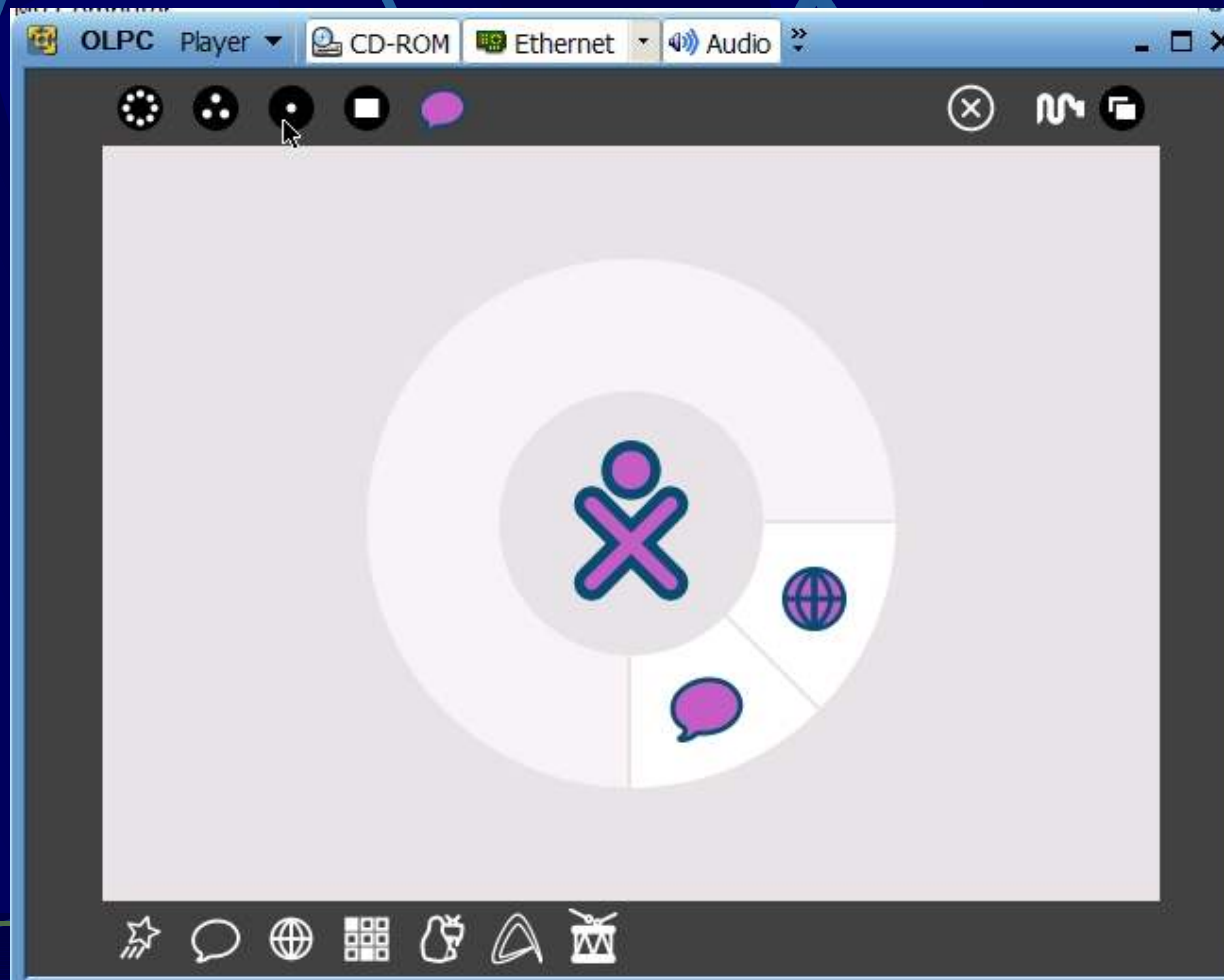
Browser shows as an activity



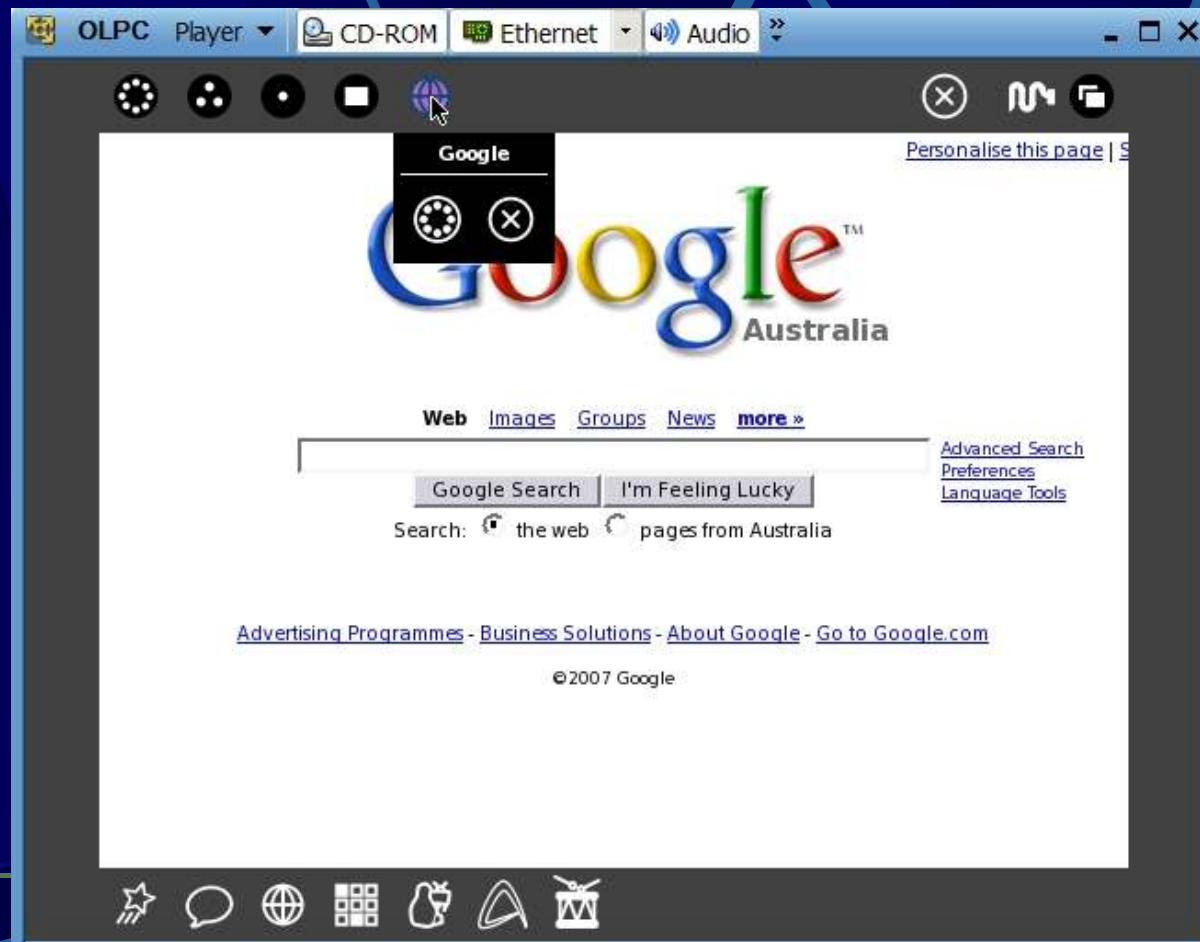
The chat program



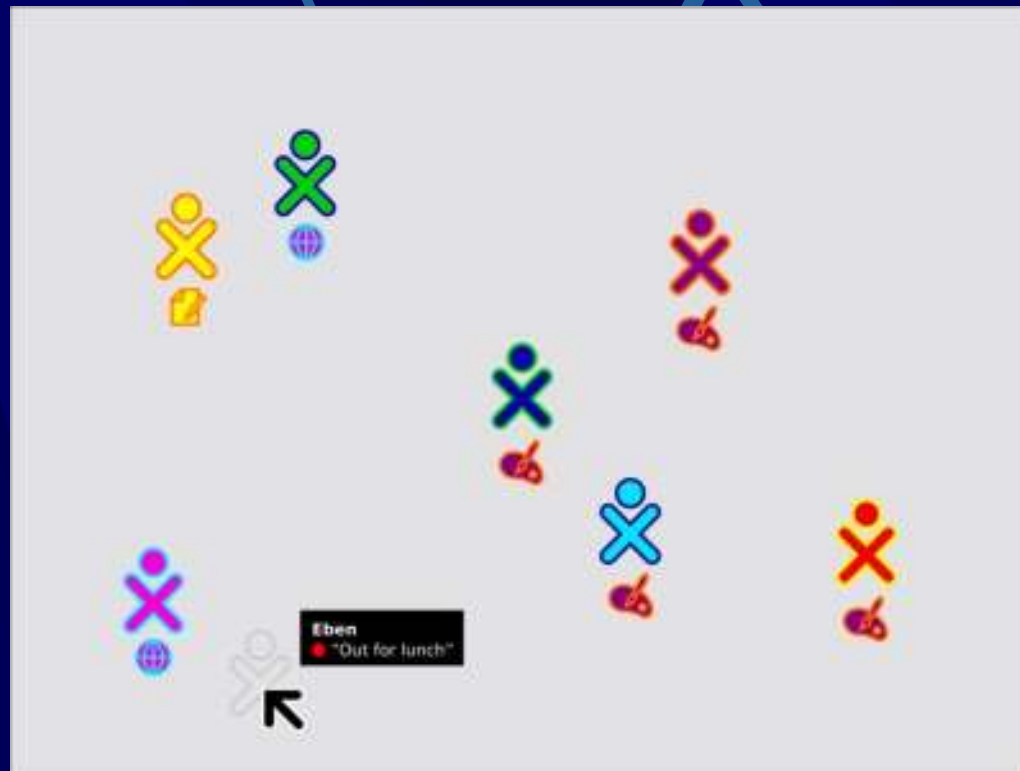
Now there are two activities



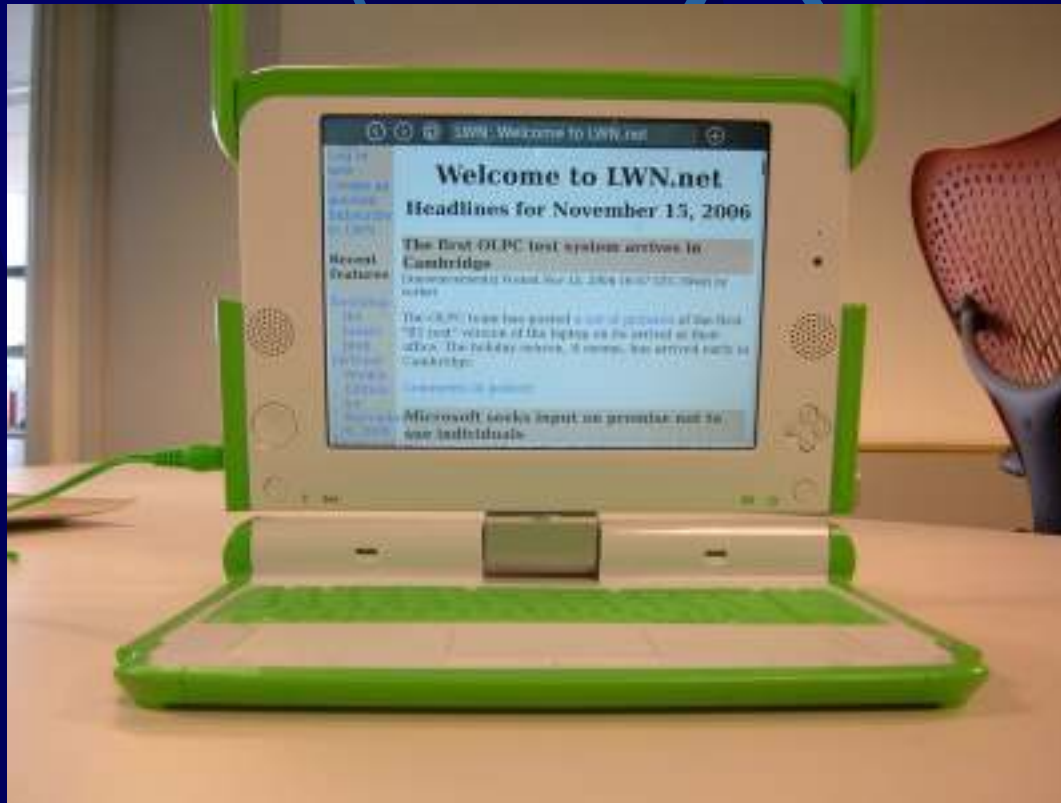
Closing or sharing a program window



Mesh – Friends View



Browsing – the real thing



Political environment

- Only dealing with governments
 - Minimum order is 1million units
- Eight countries including Brazil, Nigeria, Libya, Thailand (?) - letters of intent
- Other countries “interested”
- Condemned by Bill Gates
- Heavy debate about suitability

Comments

- And questions.....