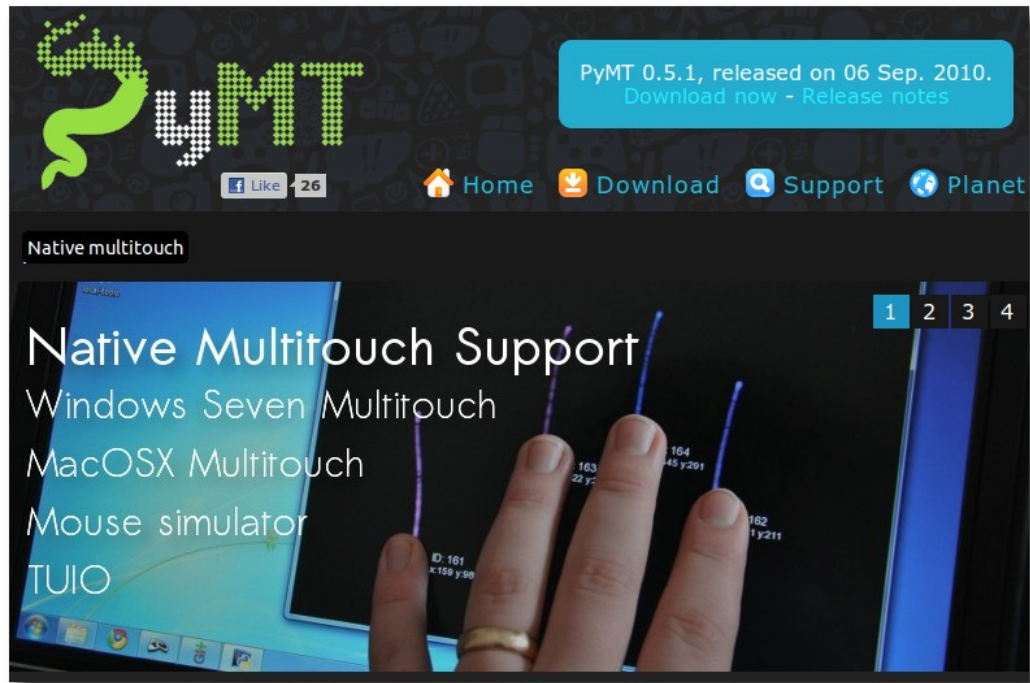# PyMT

"An open source Python library for developing multitouch applications."

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Python Northwest
21st October 2010

The Multitouch (R)evolution

- The ability to simultaneously register 3+ distinct positions of input touches on a touch screen.

- Lends itself to usable multiuser applications / applications which don't follow the usual mouse based desktop paradigm.

- "Gesture Enhanced" e.g.:

  - One finger drag

  - Two finger pinch to zoom and rotate

  - Three finger scroll

- Set to become more widely used because of its intuitiveness. Note that gestures are not standardised between between platforms and applications. Yet?

The Multitouch (R)evolution (cont.)

- Think iPhone / iPad / Helm of USS Enterprise!

http://en.wikipedia.org/wiki/File:Multitouch-table.jpg
Creative Commons Attribution-ShareAlike 3.0 Unported

The PyMT Library

- Linux/OSX/Windows.

- GNU LGPL License.

- Python 2.6.x and higher. Python 3.x not yet supported.

- Uses NumPy, PyGame, PyOpenGL.

- Optional acceleration with Cython based C extensions making direct OpenGL calls.

- Actively developed.

- Google search for PyMT: **Second** highest hit. See for yourself which is the highest! (A good lesson in choosing a suitable name for your project :)

DEMO 1

Bundled kitchen sink example.

Hardware Support

Good hardware support. If your hardware works with your OS, it will work with PyMT:

- Linux (>= 2.6.34): native support for multitouch events from the kernel.

- OSX: all Apple multitouch devices supported including builtin trackpads, magic mouse, magic trackpad.

- Windows 7: native support for WM_Touch and WM_Pen events.

Hardware Options

- Touchscreen tablets / laptops.

- Trackpads.

- TUIO.

- Wiimote.

- Mouse emulation for those who can't beg borrow or steal any of the above.

PyMT Code – "Hello, World"

```python
from pymt import *

class CircleDrawer(MTWidget):
    """Draw a circle at touch positions."""
    def draw(self):
        set_color(1, 0, 0)
        for touch in getCurrentTouches():
            drawCircle(touch.pos, 50)

runTouchApp(CircleDrawer())
```

DEMO 2

Hello, World.

PyMT Widgets

- The widget is the basic PyMT graphical element handling state, updates, drawing and input.

- A selection of basic widgets e.g. buttons, sliders etc.

- A selection of more complex / compound widgets that lend themselves to multitouch use.

- Can be styled and customised using CSS.

- Widgets respond to events e.g.:

  - on_touch_up()

  - on_touch_down()

  - on_draw()

DEMO 3

Widget gallery.

PyMT Utilities

- Drawing framework based on OpenGL provides easy drawing of basic shapes, polygons, textures. OpenGL available whenever needed for more advanced use.

- Image and SVG handling.

- Audio and video handling.

- Animation framework. "Kinetic" object response to touch is an important part of the user experience.

DEMO 4

Animation framework.

Roadmap

- TUIO v2. Timing information, finger pressure, additional geometry information.

- OpenGL 3.

- Network / proxy widgets – serialise and share widgets over a network.

Thanks!

http://pymt.eu

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