Sensing Our World Workshop

Scratch@MIT, 26th -28th July 2012

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COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE

WARWICK
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workshop outline

- build and calibrate sensors
- choose and build your own sensor
- share ideas for sensors and applications

Tilt Sensor

Variable Value Sensor

Bottle Top Drums

Buttons & Pots

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for this workshop you need:

- scratch software (scratch.mit.edu)
- sensor board driver (USB)

workshop sheets are here:
http://go.warwick.ac.uk/scratchresources

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Technology Volunteers

Outreach workshops designed to encourage young people have a deeper understanding of:

- modern hi-tech products
- relationship between hardware and software
- sensing the world around us

go.warwick.ac.uk/techvolunteers

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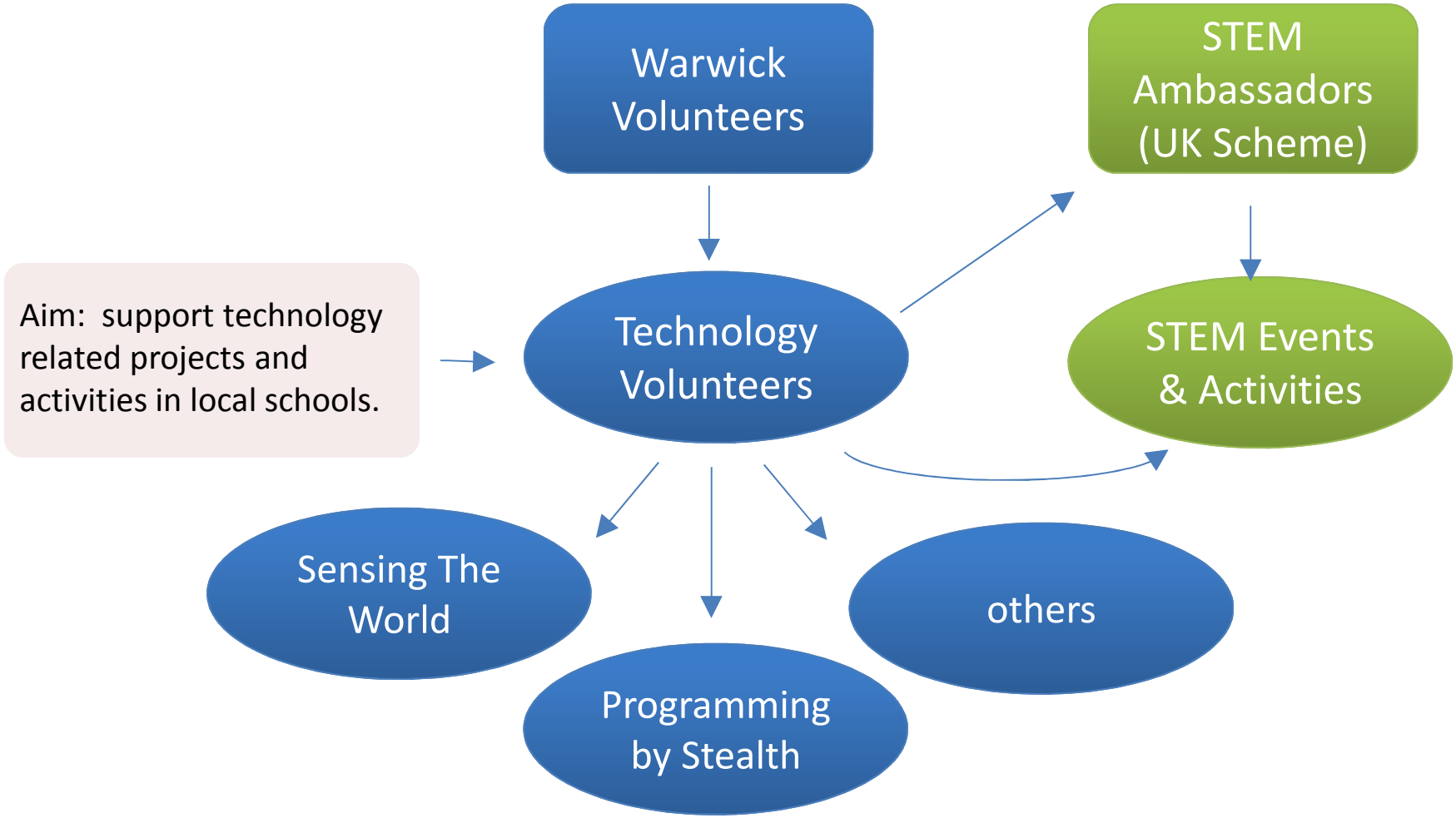
THE UNIVERSITY OF WARWICK

Warwick Volunteers

STEM AMBASSADORS ILLUMINATING FUTURES



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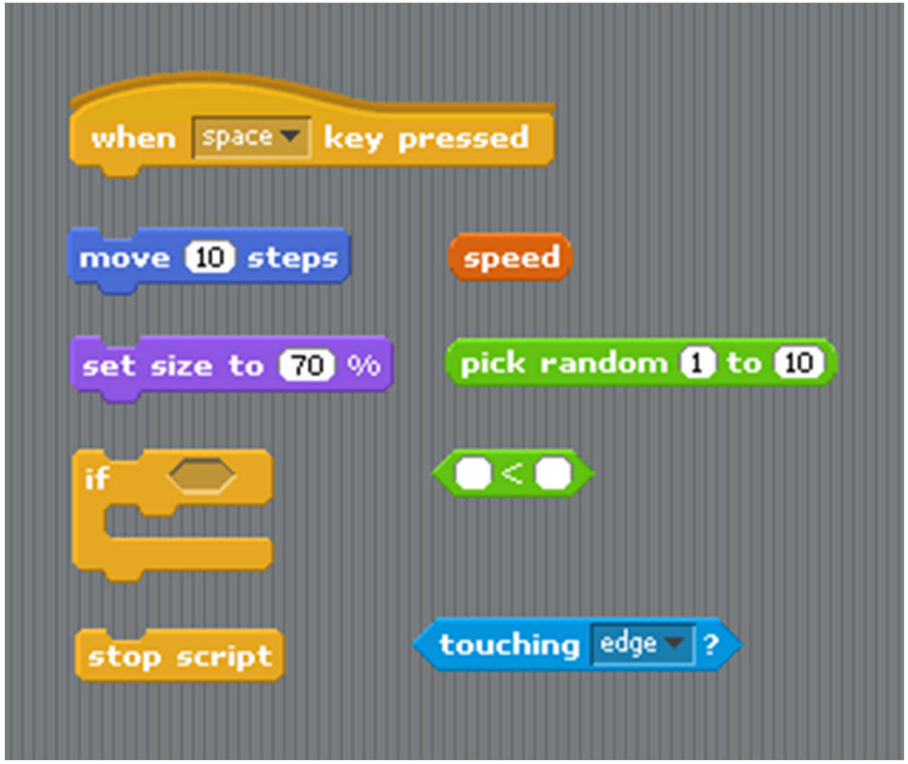
what?

1 hour sensor workshops

in local secondary schools

student led

Scratch developed by MIT Media Lab
Scratch Sensor Board (Picoboard)



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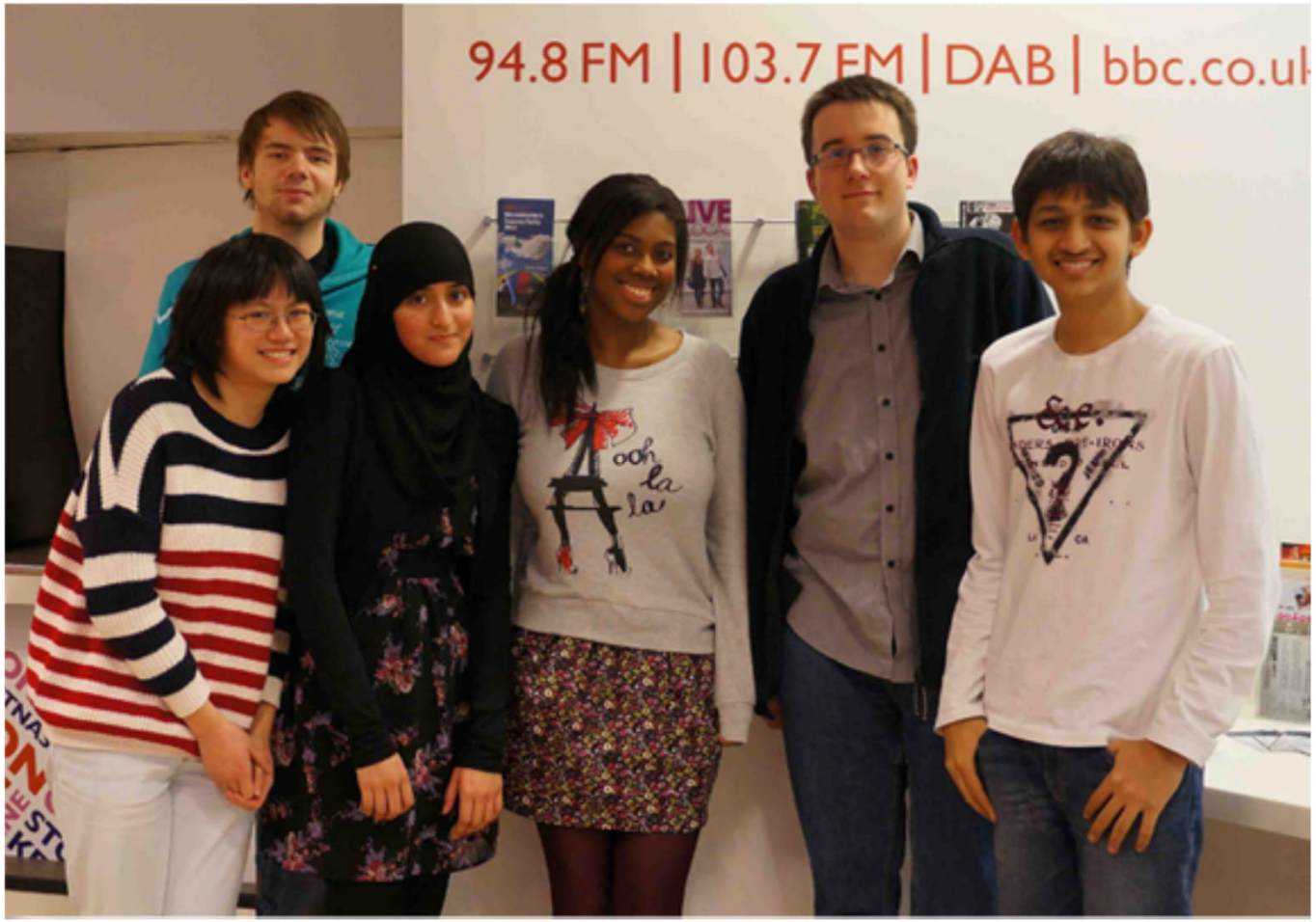
who? → undergrad volunteers → postgrad + staff



STEM background

STEM Ambassador

volunteer skills + training

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where?

whole class in school

mini community of learners

software on school computers

broaden teachers experience

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Why Sensors?

enhance

gaming

experience

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Sensors in Smart Phones

Light

Accelerometer

Temperature

Sound

Orientation

Pressure

Proximity

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Sensors are everywhere…WMR

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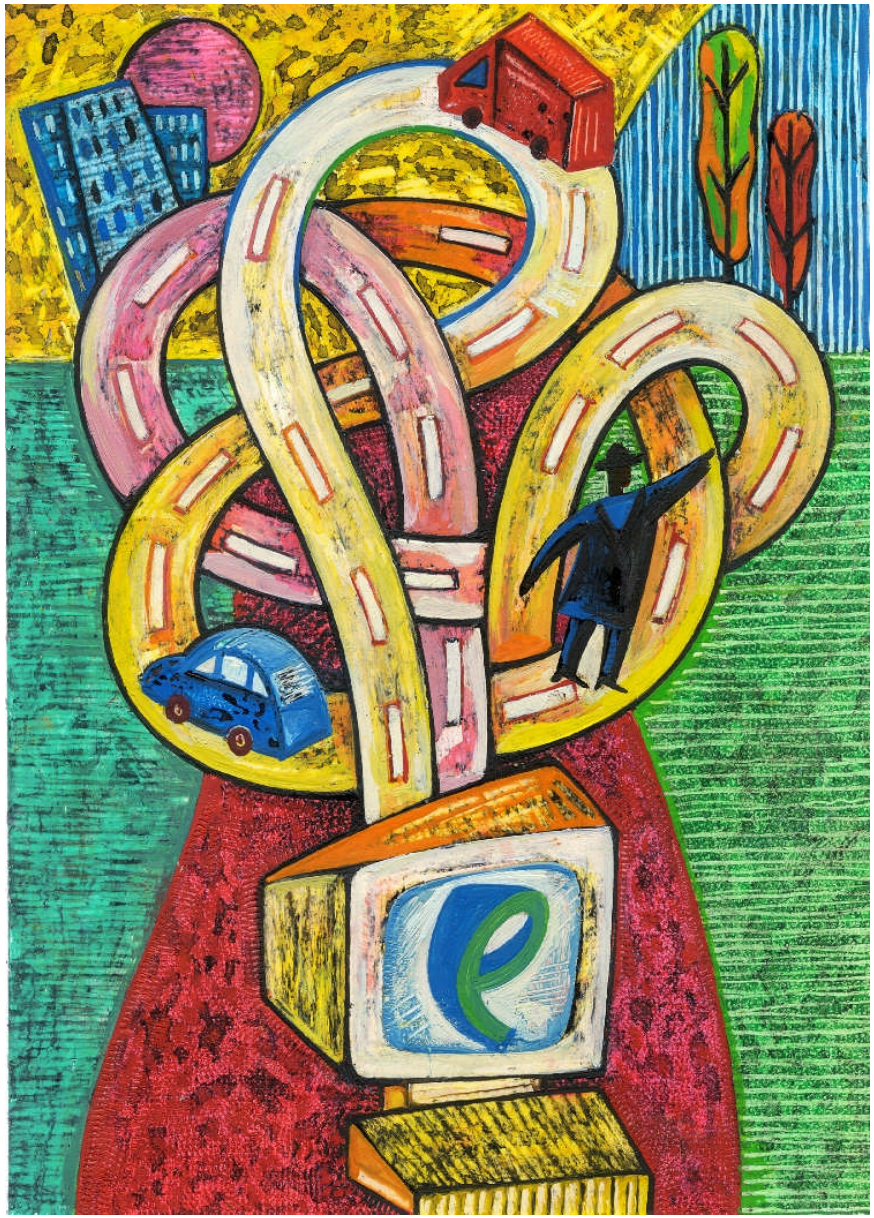

Internet of Things

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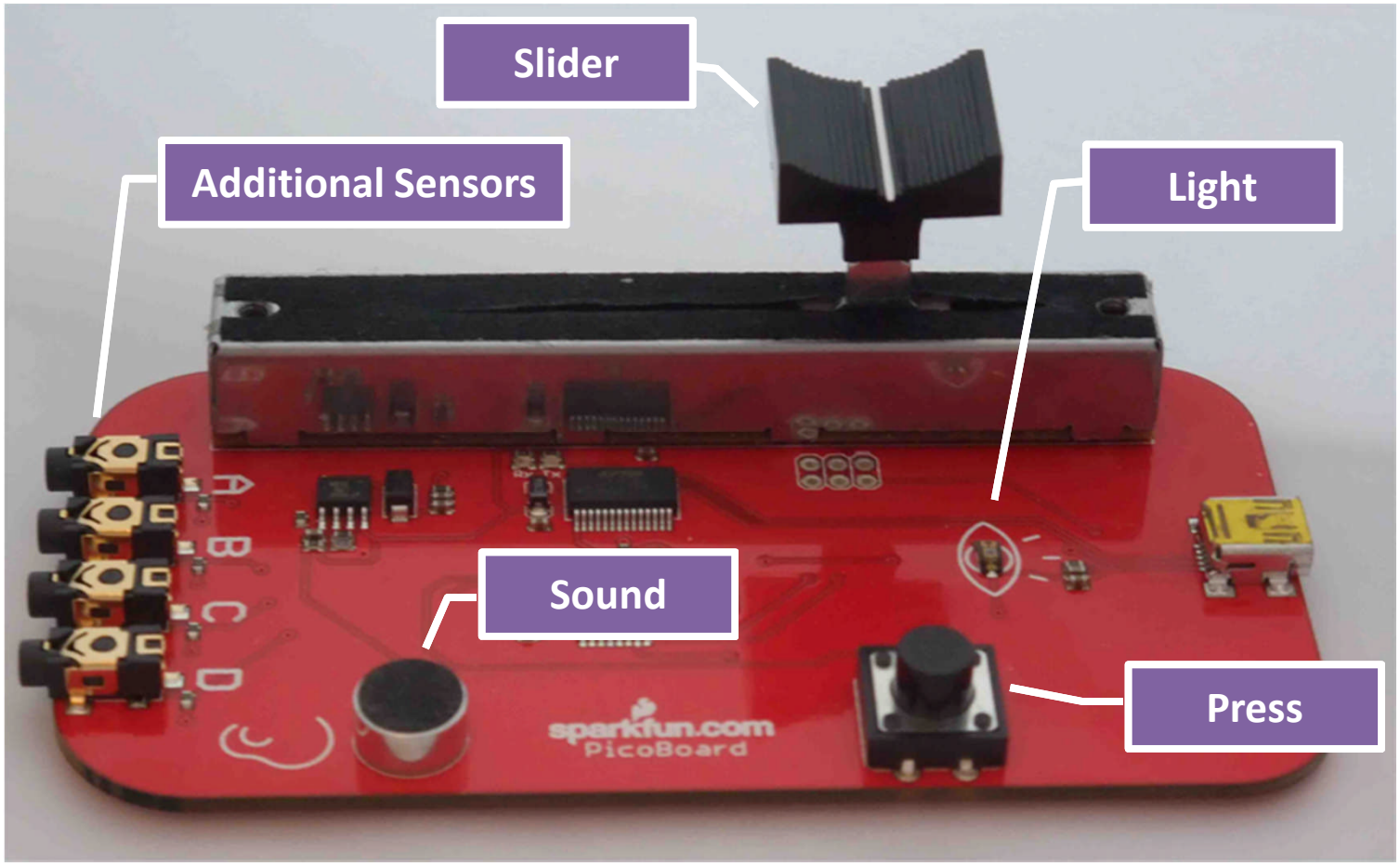
Scratch Sensor Board (Picoboard)



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Scratch sprites can respond to

- **Sound**, change how the sprite looks when there is a loud sound.
- **Light**, hide when its dark (or light)
- Others, use the **slider** and **button** to control a character in a video game.

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Using Sensors with Scratch

- Sensors return value from 0 … 100
- Keep reading values from sensor (loop)
- Calibration of sensors

Scratch provides Scratchboard Watcher!

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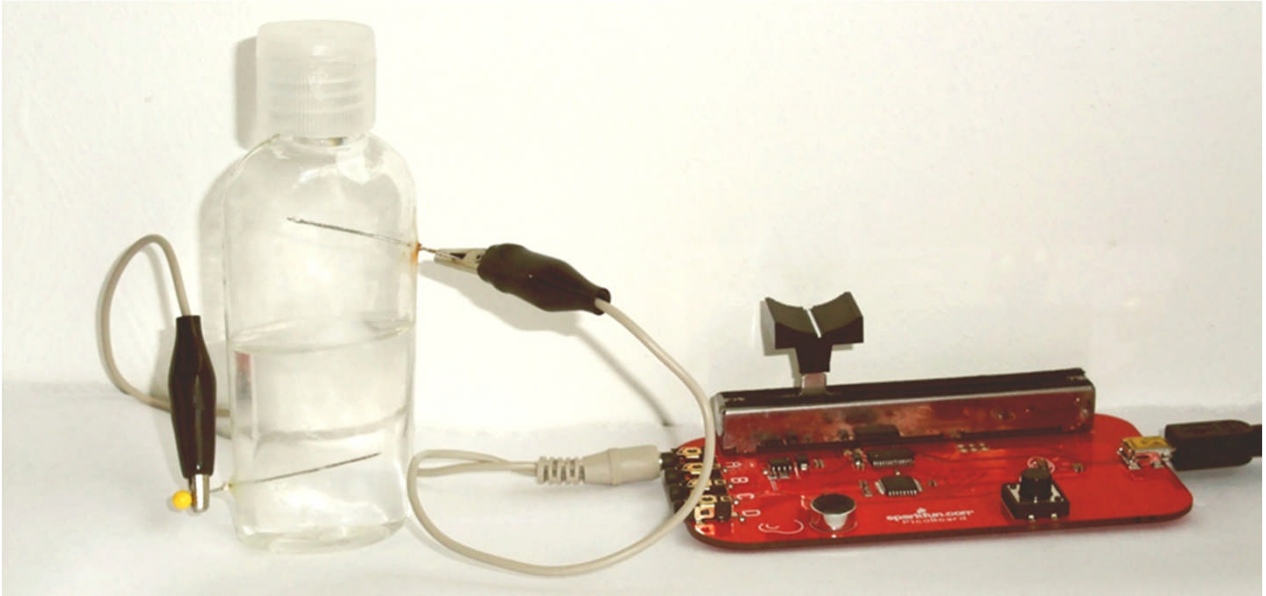
this workshop

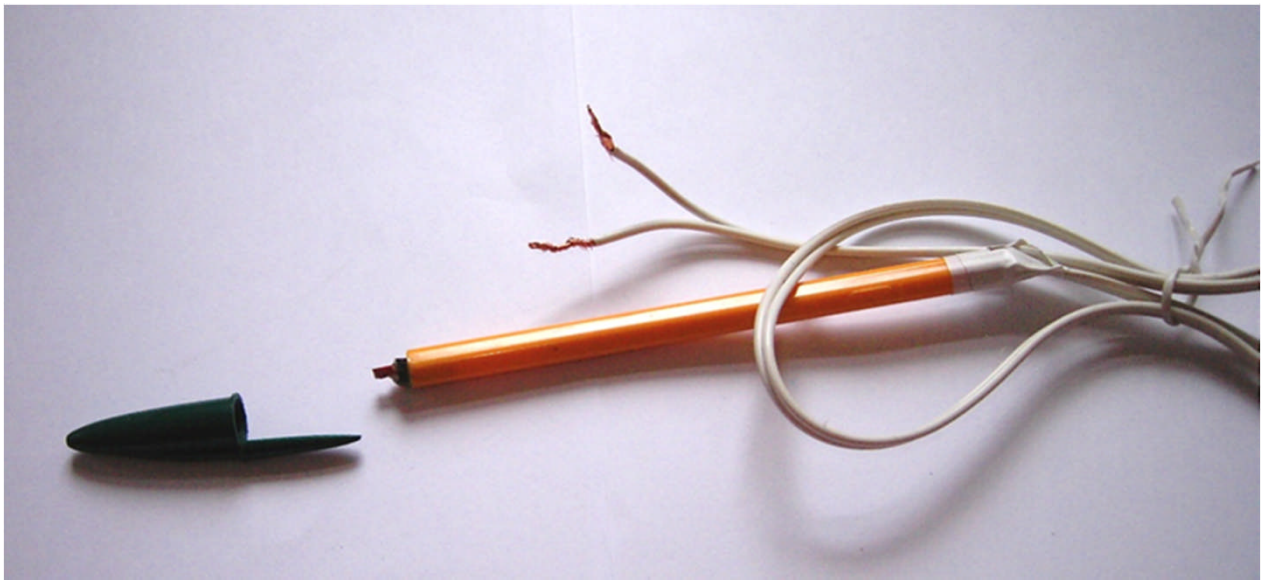
↓

home made sensors

↓

home made interfaces





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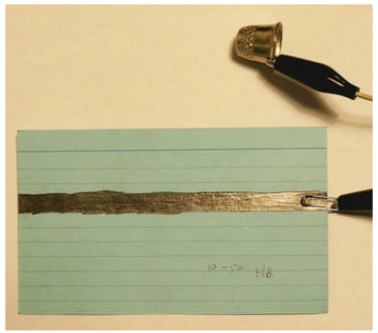
Now to build sensors and develop sample applications

Demo: touchpad, guitar, glove, etch a sketch

Tilt Sensor

Variable Value Sensor



Bottle Top Drums

Buttons & Pots

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finally

share ideas for….

sensors

interfaces

applications

???

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Thanks.....

Warwick Volunteers

Peter Rose
Sarah Newell
Helen Kendrick
Kim Waite
Jenny Watson
Hannah Hodgson

Technology Volunteers 2011-2012:
Phil How
Zora Mbatha
Andrew Sula
Stephen Tate
Fiona Tang
Mihir Parekh
Sana Pathan

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Engineering

The Royal Academy of Engineering

Jean Bodycote
Whitley Abbey School

WMG Innovative Solutions

IATL

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bcs The Chartered Institute for IT

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