Sensing Our World Workshop

Scratch@MIT, 26\textsuperscript{th} - 28\textsuperscript{th} July 2012

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workshop outline

• build and calibrate sensors
• choose and build your own sensor
• share ideas for sensors and applications
for this workshop you need:

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

workshop sheets are here:
http://go.warwick.ac.uk/scratchresources
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
Aim: support technology related projects and activities in local schools.

Warwick Volunteers

STEM Volunteers (UK Scheme)

STEM Events & Activities

Programming by Stealth

Sensing The World

others
what?

1 hour sensor workshops

in local secondary schools

student led

Scratch developed by MIT Media Lab
Scratch Sensor Board (Picoboard)
who? undergrad volunteers postgrad + staff

STEM background

STEM Ambassador

volunteer skills + training
where?

whole class in school

mini community of learners

software on school computers

broaden teachers experience
Why Sensors?

enhance

gaming

experience

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Sensors in Smart Phones

- Light
- Accelerometer
- Temperature
- Sound
- Orientation
- Pressure
- Proximity
Sensors are everywhere... WMR
Internet of Things

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Scratch Sensor Board (Picoboard)

- Slider
- Additional Sensors
- Light
- Sound
- Press
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.
Using Sensors with Scratch

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

Scratch provides Scratchboard Watcher!
this workshop
home made sensors
home made interfaces
Now to build sensors and develop sample applications

Demo: touchpad, guitar, glove, etch a sketch
finally

share ideas for....

- sensors
- interfaces
- applications
- ???