Sensing Our World Workshop and Resources

The funding provided by IATL, enabled the development of a reusable set of resources to support outreach workshops and self-learning activities in the area of sensors and their applications. These resources were presented through workshops at national and international conferences, and are also freely available online through the University of Warwick website.

The IATL funding specifically supported the participation of Philip How, (4th year Computer Science student) enabling him to take part in the development and subsequent delivery of the Sensing Our World workshop, at conferences in the UK and at the Scratch@MIT Conference in Cambridge, MA, USA.

Since 2008 the Technology Volunteers (a Warwick Volunteers project) have run many workshops in local primary and secondary schools to give young people a better understanding of how their mobile phones and other highly sophisticated devices work. Philip How joined this project in 2009 and in 2011-12 led the Technology Volunteers project. Out of these experiences arose a number of ideas for reusable resources, and these formed the core of the resources presented through the *Sensing Our World* workshop.

The project outcomes were:

- The production of resources for workshops and self-learning based around sensors and their applications.
- The presentation of these resources through workshops to a variety of audiences.
- The sharing of ideas, gathering feedback and looking for potential collaborations with interested parties in the international community.

The workshop and resources were presented at the following national and international conferences:

- 15th June 2012. Sensing Our World, Computing At School (CAS) Conference 2012, Birmingham.
- 27th July 2012. Sensing Our World. Scratch@MIT Conference 2012, MIT, Cambridge, USA.
- 5th September 2012. Sensing Our World. National HE STEM Programme Conference 2012, Birmingham.

The final versions of the workshop resources were placed online and freely shared in July 2012 through the following channels.

- The University of Warwick website. http://go.warwick.ac.uk/scratchresources
- Scratched (Scratch Educators online community) http://scratched.media.mit.edu/resources/sensing-our-world-workshop

The visitor statistics on the Warwick resources webpages show that >1000 visits have been made to these resources since July 2012. Normally these resources show visits between 5 – 40 visits a day, however on the Friday 27th of July the number of visits was > 500. This was the date of the workshop presentation at MIT.

Earlier versions of the workshop and associated resources were presented to local audiences, and feedback led to a number of revisions being made. Instead of producing a single document containing a range of topics, a set of individual worksheets showing how to build a sensor and how to use the sensor were felt to be more flexible and allowed teachers to be integrate sensor activities into existing lessons.

Local workshops:

- 16th May 2012. Initial sensor worksheet pilot at the British Computer Society (Coventry) branch meeting.
- 29th May 2012. Sensor Workshop, Computing at School (CAS) Teachers HUB for Coventry and Warwickshire.
- 28th June 2012. Sensor workshop for teachers. Coventry LEA ICT Teachers Conference.
- 5th July 2012. Introducing Sensors workshop, Year 8 schools event (Warwick Computer Science Dept).
- 13th July 2012. Sensors and Interfaces workshop. Dragonfly Day – Engineering Careers for year 9 pupils. Co-organised with School of Engineering.

At each event, feedback on the workshop and the associated resources was gathered and this was used to refine the resource sheets. At the MIT conference workshop all participants shared ideas for further resources and ideas for sensors. These are listed on the ScratchEd site (see link above).

Overall the Sensing Our World workshop and resources have proved to be extremely popular with all participants (teachers and pupils). The workshop at MIT was oversubscribed, so an additional session was organised at the end of the conference day to share the resources with anyone unable to get into the scheduled workshop room.

A number of articles have been published about the workshop and the sensing activities:

- Sensing Our World: Projects Using Scratch SensorBoards. Computing At School Newsletter, Autumn 2012. (http://www.computingatschool.org.uk/data/uploads/newsletter-autumn-2012.pdf)
- British Computer Society Coventry Branch report: (http://coventry.bcs.org/SOW.php)

The leaders for the Technology Volunteers Project for 2012-13 (Samantha Edwards, Andrew Sula and Thomas Preece) have been using the resources to train new volunteers and have received requests from local schools who want workshops in the spring term. Opportunities for collaborations within the UK and internationally with other Universities and schools are currently being explored.

The funding provided by IATL helped to bring voluntary regional activities to the attention of an international audience, raising the profile of the University, its existing voluntary activities through Warwick Volunteers, highlighting the active role played by undergraduate students.

Note: *Support for these resources was also received from HESTEM (Engineering for Society), BCS (British Computer Society) and CAS (Computing At School).*

Margaret J. Low, Senior Teaching Fellow, WMG. November 2012.