

# TEP RESOURCES FOR SYSTEMS AND CONTROL

## AT ST CYRES COMPREHENSIVE SCHOOL

Damian Parker is in charge of Systems and Control teaching at St Cyres School in Penarth and over the last couple of years has created a unique range of teaching and learning aids to help his students.

We first met Damian Parker at a WJEC/WDA event in Cardiff last year and had a brief conversation about teaching aids and PIC technology not surprisingly we took up the offer of a visit down to his school for the afternoon.

Taking the opportunity to integrate a number of control technologies a typical teaching aid developed by Damian in **fig 1** shows an IQ controller wired up to an isonic valve to control low pressure air for the single acting cylinder to push ping pong balls into the spinning motors as a ball launcher that is also IQ controlled. The whole A3 sized unit is used by pupils to explore programming and repeat lines and delays to fire the balls across the classroom pretty effectively. We noted the onboard instructions and labels and could see the parallels with our own PrESS teaching aids.

In **fig 2** Damian is demonstrating a PIC motor speed unit for pupils to explore how different digital inputs and programming can control motor speed. His classroom walls were quite literally 'smothered' with teaching aids. We particularly liked the use of Cinema-style point of sale graphics to provide icons the pupils related to, with fun characters from Monster Inc and Spiderman used to help teach some basic PIC principles. The way spidey's eyes light up and then he throws a web created by LEDs is really a great way to capture pupil interest.

One particular desktop aid also caught our eye and that was the imaginative use of a smartcard programmer **fig 3** and reader mounted up on a base board with 4mm plug sockets and a two wheeled buggy controlled remotely. In the picture you can also see that the same has been done with an IQ board providing a more robust, reliable and quick way of teaching using these resources.



All that perspiration by Damian has of course paid dividends and his year 11 and year 10 students are hooked on PIC based projects and coursework. Shown are just a few Point of Sale displays that are PIC based and use the TEP 'clunk click' motor and gearbox units. Some of the units were activated by pressure pads and in one case turned on a sound and light music show with a modified tape recorder. We warmed to one student's work that was 'advertising' aftermarket car suspension as the PIC controlled not just the sports car's wheels but caused the air suspension to pop the vehicle body up and down.

Damian has set up teaching equipment onto boards and labelled them up for ease of use by students with easy access from wall units rather than hidden in trays or cupboards. He has put a great deal of emphasis on the use of TEP's Chipfactory system and project boards. Next year he plans to produce his own PCBs for PIC work and upgrade computer facilities for PIC programming in his workshop.

As you might expect we have bullied Damian into joining us at the NEC this November to share some of his work and students work with us. We have also asked him to give us an update on developments in a future issue of News and Views. Our thanks once again to Damian Parker, D&T head of department Andy Duncan and the students at St Cyres school for some inspiring ideas.



fig 1 IQ controller Ball Launcher



fig 2 Damian Parker with his PIC Motor Speed unit



'Spidey' and 'Monsters Inc' Cinema point of sale displays

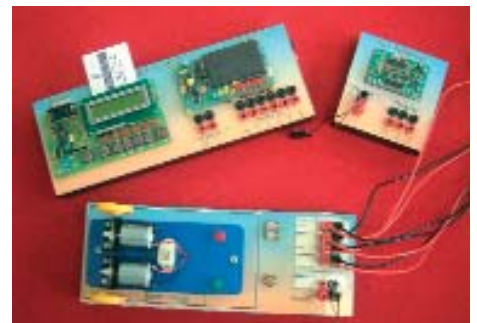


fig 3 SmartCard programmer controlling a two wheeled buggy remotely



Various PIC based Point of Sale displays



Examples of Damian's wall mounted teaching boards