IET
The Institution of Engineering and Technology

www.theiet.org

May 2015

To All potential Supporters of the
"Time Of Your Light " Project / Peak 2015
An Email from one of the Supporters
Asking kindly for Your Support,
or please forward to the relevant Person in your Company

Dear Potential Supporter,

This summer, the Institution of Engineering and Technology are joining thousands of Scouts and Guides to light up the Chatsworth House Estate!

We'll be running an exciting educational activity for over 1000 potential engineers see www.peakcamp.org.uk

It could also be a fantastic opportunity to generate a bit of low budget publicity for your organisation/business.

Scouts and Guides from all over the country will be meeting in Derbyshire for the Peak 2015 Jamboree Camp end of July and the IET has put together a volunteer-run activity to give young people the chance
to solder a programmable electronic circuit. Taking place at **http://www.peakcamp.org.uk/staff-portal.html**
They will take away a flashing badge that can be used for
Learning some Programming during the event and continue afterwards
and we hope to raise enough donations to take the activity to the next level.

Our goal is to create a high-impact animation that lights up Chatsworth and hopefully inspires the next generation of engineers and technicians.
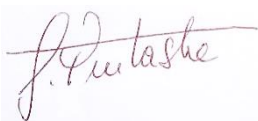
Please take a look at the attached flyer for more information about this exciting plan and how you can help.

Any contribution you can make of time, equipment, components or funds would be much appreciated and help the next generation to discover the joy of engineering. The result is not a toy – but a fully functioning 16 bit microcontroller board with on-board software.

Thank you for taking the time to consider being part of this project, we look forward to hearing from you.

Please help to support this project, as it can continue afterwards in other locations and is basically an extension of similar IET activities to extend the future electronic engineering community.

Kind regards

Juergen Pintaske, ExMark
One of the Project Designers and Supporters – and now as well STEM Amassador

PS: Latest News: TI confirmed a 1000 Microcontroller Donation – arriving next week
FTDI has donated quite a few PC USBtoTTL Interface cables
Money Donations started already: CMS – Westwood Rock – tbd.
A list of companies supporting this project from the beginning, more details next page:

" Time of Your Light " - Known Support Group as of 20 April 2015:

HIDECS – Paul Bennett   www.hidecs.co.uk
HIDECS Consultancy accepts enquiries for Certified High Integrity Distributed Embedded Control Systems projects and High Integrity System Development Processes

MPE – Stephen Pelc   www.mpeforth.com
MicroProcessor Engineering specialises in Real-Time and Embedded systems. We design tools for the complete development cycle including hardware, software and firmware. These products operate on desktops and a wide range of embedded targets.
MPE will supply the compiler software used for the "Time of Your Light" project.

ExMark – Juergen Pintaske   www.exemark.com
Project Marketing, Sales and Marketing Consultancy, representing a group of companies for product design, software and hardware development, electronics system design, CAD and Moulding.
A "Fall-back Position Component Box" has been prepared, containing now 200 MSP430 chips, 200 PCBs (probably more then to try soldering) and 400 LEDs.

TI – Texas Instruments – The MSP430 Chip   www.ti.com/product/msp430g2553
Texas Instruments generously sent us 250 MSP430 chips for a similar educational project, where just 50 have been used until now.
To ensure this project here has a fall-back position, ExMark holds these chips and will donate them if required.

EuroTech – Keith Hole   www.eurotech-group.co.uk/
EuroTech, like TI, supported the same ExMark project with PCBs, very similar to the ones that will be used for this project here. In case we cannot get the required PCBs made within the budget and designed by Paul, then ExMark will help to make 200 of the old type PCB available for the event.

Omflow – Stephen Powley   www.omflow.com/
Omflow's managing director initiated Time of Your Light and is overseeing the project in his voluntary capacity as IET Schools Liaison for Derbyshire. Omflow is proud to share our expertise to help inspire the next generation of engineers and technologists.

Many Others
Soldering and making a Computer System work is the target here. And to take it home. And it should not stop there. Expansion provisions have been built into this design to continue later. In this context ExMark would like to thank the many others that helped to shape hardware and software of the existing design, especially **Michael Kalus** for the software design and examples and **Ralf Lieb** for the PCB design options.

A bit more Background for the technically minded, and see the pictures on the next page:
Having fun with electronics is often clouded by the big first entry step – and missing successes.
In this project we start with the soldering of a small board. The one in the attached flyer is actually misleading as it was just an example available to take a picture of. All of the components used are through hole and only a few. The microprocessor used is one of the few available in such a package for easy soldering – in contrast to the one in the picture which is only for the experienced to master or the right equipment.
The end result will be a fully functioning microcontroller board programmed and with interfaces necessary to extend. The on-board flashing LED will be the first test and success.
Software is the getting more important, so there is software on-chip to start Learning Interactive Programming.
The provided interactive language Forth is ideally suited to start and program simple applications. No other software tools required. All on chip.
But it does not end there. Complexity of the projects can increase. Links to examples will be provided at the time.
Just as a reminder:
The MPE software used here controlled Philae to land on the asteroid. Success after 10 years waiting to arrive.

A similar starter project you can find under http://www.forth-ev.de/wiki/doku.php/en:projects:mmt4ue2:start .
Using exactly the same hard and software as this project and the PCBs are nearly the same as will be used here.
Enjoy the videos. The hardware shown is the TI Development Kit – but this little board can achieve similar things.

If you think you would like to support this project with a donation or parts or for questions, contact
Stephen Powley IET Schools Liaison Officer, Derbyshire   07736 448 738   spowley@theiet.org
Helen Gregory   Peak 2015 Activities & Events Assistant Manager   07711 110 456   helen.gregory@peakcamp.org.uk
Juergen Pintaske ExMark and Project Supporter   07736 70 76 74   juergen@exemark.com
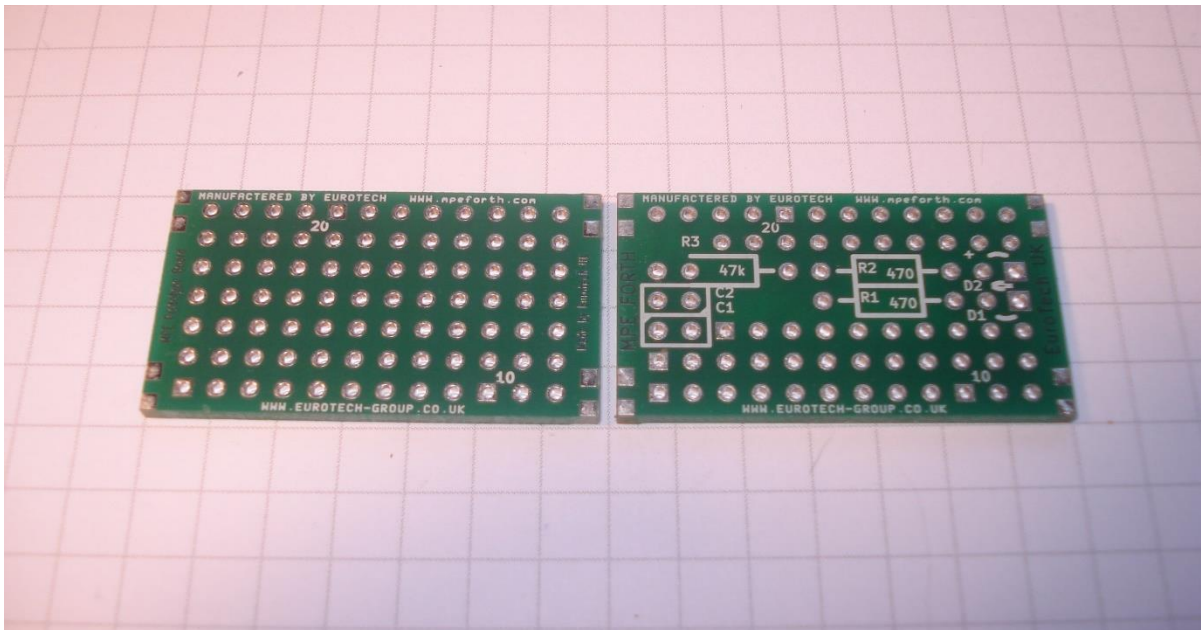

Donation Account: Unity Trust - Account: 20334918 Sort Code: 08-60-01   **Clearly Marked:** IETTimeOfYourLight

Scout Project first Boards for Testing

Additional Prototyping Board   and the MSP430 Controller Board

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Below: The Next Step Extension Board for Programming   Populated Board for testing with Software

Solar Power Supply driving Example using an LED Torch
and a rechargeable 2032 Li Ion Cell, LEDs still work   and for comparison the unpopulated board

On the left, the 3 LEDs of the Torch, the Solar Cell   Cables: Serial / Power Supply   2 Program Pins

Pictures by   Juergen Pintaske, ExMark, May 2015