HIDECS

High Integrity Distributed Embedded Control Systems

Forth in Education – A Report

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The last year

- Signed up as a STEM Ambassador
- Production of the design of a small board for easy assembly by young people. This was based around the MSP430 & Vfx-Forth-Lite.
- Attending the Peak2015 Scout and Guide Camp for the IET “Time of Your Light” activity.
- Preparation for a follow-on meeting with the IET Education Team to explain further development proposals.
- Beginning of the development of a simpler means of teaching Forth to young people (even without the aid of a computer).
- Considering potentially work with the BBC-Micro:Bit.

STEM Ambassadors

- Approved to work directly with young and vulnerable people (Police checks are performed on the applicant).
- Provide career and opportunity advice to young people
- Engender Enthusiasm for learning STEM subjects through relating real-world experiences of Engineers, Technicians, Scientists and Mathematicians.
- Voluntary Time and Effort contribution needed but some expenses may get paid (travel etc if claimed)

Peak 2015 – IET Time of Your Light

- It was the Year of Time so the activity had to do something with time in a visibly demonstrable way.
- We aimed to get more Forth based systems out in the wild
- A Kit of parts, donated by approximately 26 organisations found us with plenty of components and PCB's for the activity.
- 457 Scouts and Guides built their own micro-controller board complete with a battery supply that they could take home with them (Juergen calls this a microbox).
- The board was programmed with Vfx-Forth Lite and is accessible by a simple terminal programme (most would probably use a USB to serial converter cable like the FTDI one).

Peak 2015 – IET Time of Your Light

- IET TV were present at the event and the three most involved in the event organisation (Stephen Powley, Juergen Pintaske and myself) were interviewed. Forth got prominent mentions during the interviews.
- The head of the IET Education group found our intention to expand out on the activity of interest and a meeting is being held this month between the IET and the above three persons to establish further promotion prospects and support.

Teaching Forth to the Young

- It does not need a computer to explain the principles. Just a few simple props.
- The young people can be in primary education but will need, at least, to read with cognition (so mostly 7+ or some very advanced 5+).
- Role play is seen as key to embedding the principles.
- Fun projects are needed to cultivate enthusiasm.
- We need to rebuild the maker generation.

The BBC Micro:Bit

- Languages the consortium considered were:-
  - Logo, Scratch & Python

Sadly Forth was not amongst those considered but that is our poor marketing as a community.

Micro:Bit method of programming is a long chain of events (see next slide)

The Micro:Bit distribution is currently delayed due to technical issues.

BBC Micro:Bit

- Programming Micro:Bit is via a web-based application that runs a simulator of the board.
- When the programmer is ready to commit, the program is uploaded (via a Micro-soft server) for it to be compiled (hence all programmers need a log-in)
- The uploaded programme, once compiled is provided back to the programmer via a flash utility to send the code to the Micro:Bit.

It could probably do with taking a Forth on-board to enable a more direct and simpler means of programming.

Conclusion

- Getting Forth in the minds of the younger generation will take some time and effort
- Becoming a STEM Ambassador and forming closer associations with schools and colleges will help get the message across here.
- It needs exciting project suggestions to raise enthusiasm of the young.