



Go North then Keep Right On

Some thoughts of Howie and Bill in the few quiet periods at Go North concerning a T-Exchange program for the next year

We received a small grant from UHI for the Go North Organic Orchestra but it was hardly enough to cover costs. However, we now have three Arduino Leonardos with special shields and four good quality "220 Watt" stereo amplifiers with four reasonable "250 Watt" loudspeakers. The orchestra "consoles" can be used again for future public events.

Clearly, we thought, if we can make items that are truly novel and not generally available, we could supplement our funds. This is important because future grants are likely to move to 50/50 funding on a cash basis. In addition, we thought that the T-Exchange now has enough members with competent and reliable skill-sets to concentrate on a few "activity threads". Each thread, over the year would hone the skills needed for each thread, mainly by developing, hands-on, a creation with some potential for cash income. Some "underdogs"--1* would be volunteered to encourage each thread in the right direction.

Some potential threads that we discussed are:

(1) 3D printing.

The aim will be to get, at least, two 3D printers up and running and producing prototype components within the next year. We should aim to recycle as much scrap as we can into them. The economic endpoint is to be ready to sell printed items and/or our home-made printers and/or kits, instructions and so on. Bill's printer is currently stepping out and ready for proving the required control software. The second machine could be built by subscription. A £200 grant is currently available from the British Science Association and a second £200 would be raised by selling "3D printer-use time-slots", in advance, at £25/slot. As a start, Bill (volunteer under-dog) will produce a costed component list for a Prusa REPRAP machine, and a construction commentary based on his own experience to date. As the component STL files can be produced using Trimble "SketchUp", Duncan will act as underdog on this component. "Slic3r" is a post processor to "slice" the STL files and Arduino IDE know-how will also be needed for the machine controller.

(2) Electronic scrap.

This thread would focus on supplying de-constructed components and parts. The aim would be to salvage as many useful components as possible from electronic scrap. The T-Exchange has registered with SEPA and obtained a licence to "re-purpose" electrical and electronic waste. This will allow us to obtain waste equipment from Moray Council recycling centres. The group will need to build up a set of boxes, so that everything can be stored neatly – nuts, bolts, wiring, switches, plugs, circuit boards, metal rods etc. Howie has been re-purposed for this activity.

(3) Raspberry pi.

The aim of this group would be to find practical uses for the Raspberry pi. One application, which could lead to a genuine product, would be the application of the remote viewer (a digital camera obscura) for Nelson's Tower. The possibility of this project has been welcomed by Forres Heritage Trust because it enables many disabled visitors to enjoy the view (and the

overlaid view information) without climbing the tower. The prospect of sales to many similar viewpoints is tempting. The group would also aim for each member to develop a mastery of the Raspberry pi and Python, so there would also be a teaching aspect to it, particularly with the involvement of Claire Griffiths and Moray schools. Tom would make an ideal underdog for this group.

(4) Arduino applications.

This would be a brainstorming and learning group. The brainstorming would be in the exploration of practical uses for the various Arduino boards, particularly the low-cost, bare-bones designs. The learning would be in working through the different kinds of applications with a variety of sensors and actuators, so that each member of the group could develop a mastery of the Arduino system. For example a sun-tracker for a PV solar panel might sell quite well. We might ask for a volunteer to guide this group.

(5) Textiles.

This would be a continuation of the thread that has been started by Elidh and Scott, i.e. the selection and use of conducting yarns. Essentially the aim of this group would be to explore the potential of new materials in opening up opportunities for the design of new products to sell. Conducting string for a toy organic musical instrument would be interesting. Scott has already self-selected to lead this group. (With Elidh as a very capable assistant.) Jennifer Cartwell (maker of custom hand-bags) might also be willing to make a useful contribution.

(6) Cubesats

Tim Schroder has told us that The British Interplanetary Society are keen to get amateur groups building CubeSats, as the cost is now becoming less than unreasonable. If we can think of a "mission" this would be an excellent long term project with lots of learning opportunities and credit rating, if it is successful. It is perhaps a project in which we could get some senior pupils or students involved together with a local company or two (?). There must surely be an underdog for this thread. Volunteers?? There may be a Royal Academy of Engineering grant available to support a suitable project. Maybe just building a tracking receiver would be a good start. (See Arduino solar tracker above – common technology?)

(7) Finally, if these different projects or other "stray" threads come to fruition we might aim for a public exhibition in one year's time.

(8) Finally, finally, on grants, we have just registered with Statkraft our interest in the Community Benefit Fund related to their Berry Burn Wind Park on Altyre estate south of Forres. They are making a Community Benefit Fund of £166,750 available per year.

Their representative, Bob Kass, commented that projects like many of those listed here would be just the kind of applications they would like to see.

Howie and Bill
15/06/13

Note 1

An **underdog** is a person willing to work hard and continue to smile while sawdust is being thrown into their eyes.....