

A wind-up? or solar-powered radios

Sean Hawkey

Many poor rural areas depend on radio for information. Distance-learning, primary health care, farming advice, and electoral information in many areas are only available from the radio.

The importance of the radio is not to be underestimated. In the recent earthquake in El Salvador it was reported that in the event many people took nothing from their houses except their radios. Radio ownership and control in a household or community is often a reflection of social status. Radio owners even control radio use by taking out the batteries or carrying the radio with them.

Having made a capital investment in a radio, often with the income from a harvest, people often cannot afford to buy batteries regularly to power the radio.

Much more money is spent on batteries than on radios themselves and in rural shops batteries are expensive and often poor quality. Power for radios is a crucial issue.

So, when Trevor Bayliss, a British inventor, designed a wind-up, battery-free radio he thought he had made communications accessible for the world's poor.

Bayliss became a celebrity as this social invention was promoted by the media in a flood of positive press. Freeplay, the company established to produce the radios, set up production in South Africa using disabled people and ex-convicts for labour. Endorsed by Nelson Mandela and visited by Vice President Gore, freeplay was presented as a model social enterprise.

But the radios cost around \$80. So who can afford it? The main buyers are North Americans: outdoor enthusiasts, and environmentalists. Some of the radios do go to developing countries, but mainly when they are bought by aid agencies. The people the radio was designed for obviously can't afford them.

And the social principles of Freeplay have given way to market influences. As the workers are striking and being laid off, freeplay is moving most of its production to Hong Kong where cheap unionless manufacturing labour is available. South African Unions claim that the apparent 'social commitments' were shallow poses to secure market share.

Graham Knight of BioDesign states that 'it is absolute madness to think that an \$80 radio could solve the basic economic problem of access to power for radio'. 'Furthermore' he says 'a 30 foot steel coil is bound to have problems with dirt getting into it and that has been shown in field tests where the radios rarely outlast 3 months of regular use'. So is there a low-cost alternative?

Thin-film silicon photovoltaic cells are ten times cheaper than the better known crystalline solar panels, making solar powered communications viable for millions more people. A solar panel and rechargeable battery unit for a 6V radio can cost as low as \$2 or \$3 and last for ten years or more. This compares favourably with many commercial self-powered radios which cost around \$80 and have a much shorter lifespan.

Graham Knight promotes low-cost solar equipment and to help people keep the cost down he assists groups in the location of materials and assembly of their own equipment, an approach which might be most useful for community radios to help listeners convert their radios to solar power.

Equipment that Knight has set up has undergone tests in many countries and the technology has few problems. A 6" square panel with NiCd batteries powering a 6V radio in the darkest office of WACC has been running for over a month nearly non-stop and the general opinion here is that the technology is highly viable.

As yet WACC is not aware of any organisation distributing the technology on a user-ready, commercial level. This makes the technology suitable for promotion by Community Radio Organisations for use in low-income communities. A panel, with or without rechargeable NiCD batteries (at an approximate cost of \$1 or \$3 respectively) can be attached to any radio or mobile phone. Equipment can also be easily adapted for use charging laptops and 12V batteries amongst other things.

Knight estimates that panels may last several years (maybe fifteen) if they are not damaged.

Making the connection from the solar panel in the radio or phone is the main problem to producing panels ready to connect to radios because there is such a wide variety of connections in radios and phones there is no universal connection. The panels are connected using tiny crocodile clips or by wedging the contacts into location where normal batteries would be.

If you are interested in solar technology, for radios, mobile phones or small lamps, Graham Knight offers sample kits of equipment, DIY solar manuals, advice and training so that you can make low-cost solar panels for your organisation or community.

Apart from not-for-profit uses some of Graham Knight's contacts have set up small commercial enterprises in Kenya, Uganda and the Philippines for example for radios and mobile phones.

e-mail Graham Knight

Web: BioDesign

15 Sandyhurst Lane, Ashford, Kent, TN25 4NS, UK

related site:

clockwork radio by Sean Maguire