

## CHALLENGE

Spare parts, medical-equipment accessories and consumables are often lacking in the developing world.

**How it works:** ECG pad is a cheap, innovative way to monitor the human heart. When the heart depolarizes and repolarizes, small changes in skin surface potentials can be detected. With the use of an electrically conductive gel, an ECG electrode can transfer electrolytes to the ECG lead wires allowing the surface potentials to be recorded. These ready, steady, cheap and re-usable ECG pads are supplied to hospitals and clinics in developing nations. Soda bottle lid liners are removed from bottle caps, an X is cut into them and a regular metal (clothing type) snap is inserted and attached to the ECG lead line. The pad can be affixed to the patient with a homemade gel made of water, flour and salt. The pad and snap can be boiled for re-use.

## ECG PAD

**Designers:** Duke University undergraduate students  
Biomedical Engineering

**Sector:** Global Health

**When:** May 2008 - present

**Where:** Tanzania, Honduras, Nicaragua

**Cost:** 12 semi-permanent ECG pad - \$18.31

**FYI:** <http://www.ewh.org/>

### STEPS:



**Our Story:** Engineering World Health (EWH) was established by Bob Malkin and Mohammad Kiani, professors at the University of Memphis, in 2001 with the aim of improving the technological infrastructure in developing country clinics and hospitals. Under the leadership of Bob Malkin, now a Duke University professor, and with help from a handful of volunteers, EWH has initiated and grown several programs, among which a student summer program, an equipment design program and EWH chapters, are the most prominent.

EWH works with university-based biomedical engineers, industry professionals, charities that manage donated medical equipment, the international health community and developing countries to combine innovation in appropriate technology with direct support to medical technology management, maintenance and repair.

