

TOWARDS A PROGRAMMABLE TRANSMISSION ARTS PLATFORM

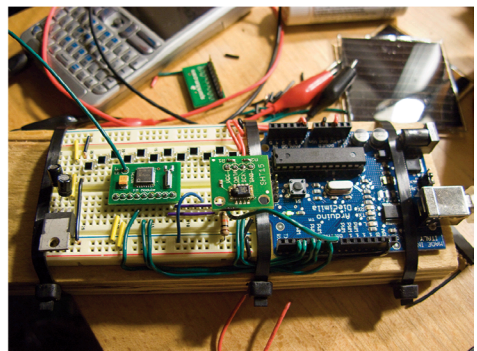
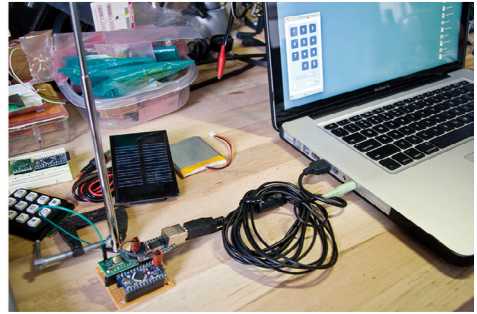
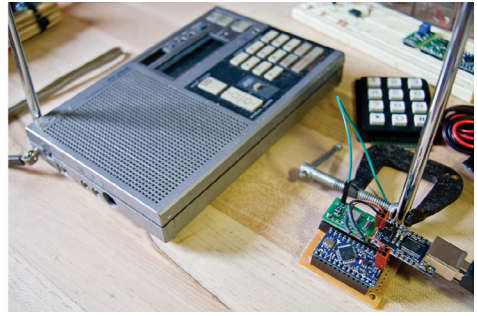
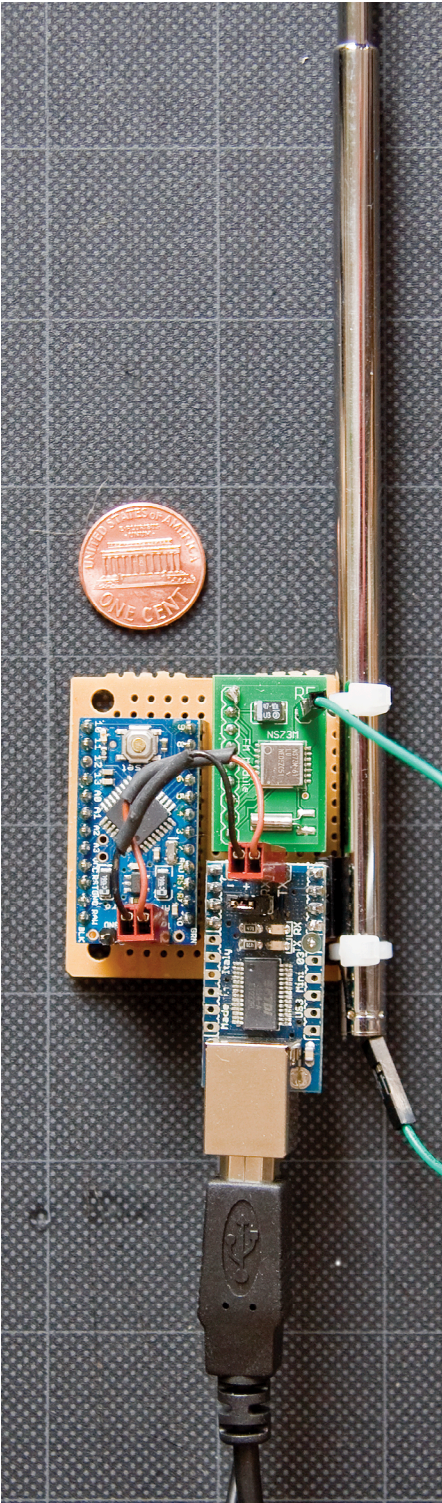
Brett Ian Balogh

The device illustrated is a programmable low-power FM transmitter platform designed for ease-of-use and flexibility in the hands of artists wishing to incorporate transmission into their practices.

The prototype requires a computer with a USB port and an audio line out. Connect the transmitter to the computer, start the keypad tuner application, and you're on the air! The transmitter operates at a maximum of 2mW, yielding variable transmission distances of approximately sixty feet indoors with a $\frac{1}{4}$ wave antenna and in excess of one hundred feet outdoors with a vertical dipole.

The current platform consists of three main modules: The first module is a low-power FM transmitter that is programmable/tunable via a I2C protocol. This module receives commands via this protocol from the second module, an Arduino board, an open-source electronics platform used extensively in new media art. The Arduino is then able to communicate with an application running on a host computer via a third USB-serial module. Audio for transmission is supplied via a standard mini jack that plugs into the computer's headphone output. The interface to the transmitter thus far is a keypad tuner application that runs on the host computer, allowing a user to directly tune the transmitter by entering the desired frequency. This application is currently written in Max/MSP, a graphical programming language for sound and music; however, a custom interface could be written in any language that supports serial communications over USB, such as Pure Data or Processing.

The use of these cross-platform, open-source programming environments permits use of the transmitter with Windows, Mac OSX or Linux platforms. The prototype is basic in terms of functionality, but the possibilities are numerous given the programmable nature of the platform. For instance, it is possible that the Arduino control more than one transmitter simultaneously, allowing the transmission of multiple audio streams to an array of FM receivers for a portable, wireless, spatialized sound diffusion system. One could also write applications where transmission frequencies are dynamically determined, allowing one transmitter to address multiple receivers. The hardware is extensible as well, with possibilities of creating snap-on



modules that would extend functionality, such as an integrated FM receiver for two-way communication, sensor interface for collecting data, a solar power module for outdoor installation, and a wireless data link for remote control, among many other possibilities.

BRETT IAN BALOGH is a Chicago-based artist working at the intersection of objects, sounds, and spaces. His work involves the creation of instruments, systems, and environments that posit alternate relationships between ourselves and the world we inhabit. More information about the transmission art platform project is at www.brettbalogh.com