Objective:

Create a tactile learning tool to instruct primary school students in the basics of computer programming. This tool will allow students to arrange blocks to perform basic operations and assignments. Verification of valid code structures will provide feedback for learning, and control of simple outputs connected to the system can give students a goal for their project.

Motivation:

Currently there are is a limited selection of methods to teach younger groups of students about computer programming, and those that do exist rely on the use of software. This project is aimed to produce a learning aid that will function in a setting where there are not enough computers available for student to use. Basic functionality of the system should not require the presence of any computer.

The implementation as a tactile learning aide is to allow students of any age to be introduced to the subject using a familiar process. Giving a physical learning aide separate from a computer will also allow the teaching of programming without the other distractions available on a PC, and give students that have trouble with abstraction a set of objects to focus on.

Description:

The final package will be a set of between twenty to thirty blocks typically about two inches along the longest edge. The set will consist of a central processor block, a small number of dedicated output blocks, and the function and operation blocks used to implement the code. Power will be distributed through the network of connected blocks starting at a battery located near/with the processor, and all of the power and data connections for the system will be through contact pads on the edges of each block. These contact pads will be held in place during use by a coupling mechanism which holds adjacent blocks together. Error notifications will be available to indicate faults in the code at the individual block.