

INSTRUCTING COMPUTERS BY PHYSICALLY CONNECTED BUILDING BLOCKS / BRICKS FOR EDUCATION PURPOSES

ABSTRACT

Instructing a computer refers to the process of providing specific sets of commands or instructions to a system or program to perform a particular task or set of tasks. Block programming (or visual programming), involves creating computer programs by arranging and connecting visual blocks or code blocks that represent different programming constructs. The present invention is the manifestation of a block programming language in the physical world that we call Physical Brick Programming Language (PBPL). The connections between the blocks / bricks can be created by hand, simply inserting the studs of one brick into the anti-studs of another brick. The invention provides bricks for all the programming elements such as variables, loops, conditions and functions. Each brick contains a microchip that stores a state and communicates through its neighbours via electrical signals with the main microprocessor. Therefore, the program is not stored in memory (RAM) as in the case of a typical computer program; instead, it physically exists in space and is represented by the connections of the bricks. PBPL is "Turing complete" s.t. any computational problem can be solved if enough bricks are provided. The users can literally build and run physical programs using their hands that are then interpreted by the main microcontroller and the results are displayed on a screen.

Figure 1