Quantum Qubes: A Game Stimulating Quantum Mechanics

Technology #17625

Applications

The inventor presents an interactive software game that simulates quantum systems. Based on the rules of quantum mechanics, the game promises to playfully build intuition for quantum theory, and has potential application for education, entertainment, and toy industries.

Problems Addressed

Quantum theory provides fairly accurate predictions of nature at the atomic and subatomic scales. However, since quantum theory describes phenomena on a scale unfamiliar to the everyday human experience, it has a reputation for being non-intuitive to the human mind. Making quantum theory more intuitive to the human brain could encourage continued innovation and discovery in the field of quantum physics. The inventor introduces a technology designed to develop intuition of quantum systems through an interactive software game

Technology

This non-patented technology consists of a software game that simulates the behavior of quantum particles based on rules of quantum mechanics. The game models two-state quantum particles, called qubits, as two-sided coins with a red and a blue side. A single coin exists inside of a box with two doors, which represent two ways of preparing and measuring the qubit.

Governing rules of the game include state preparation (red or blue side up, door 1 or 2), outcome observation (close and then open door 1 or 2), and gate operations (with the qubit hidden) for single or two-qubit systems. These game rules enable a variety of simple selections and outcomes to simulate quantum behavior and encourage intuitive understanding of quantum mechanics. Game implementation is possible on mobile devices (e.g. iPhone, Android devices, and tablets) or on programmable toys (e.g. Sifteo or LEGO).

Advantages

- Fun, playful way to develop intuition of quantum systems
- Implementation possible on existing mobile devices and programmable toys

Categories For This Invention:

Computer Sciences & Information Technology
Computer Aided Design & Learning

Intellectual Property:

Copyright Software

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