

FBEI: Functionalized Bricks with Embedded Intelligence

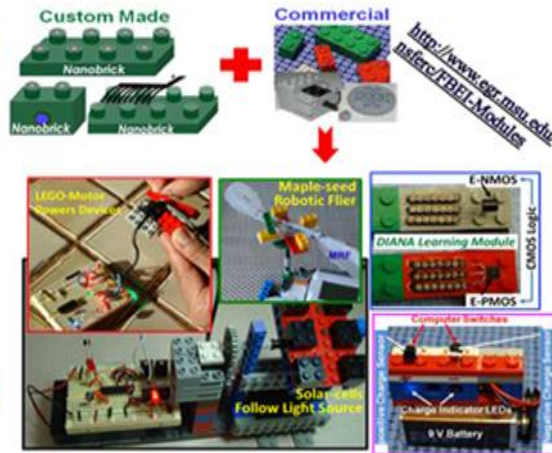
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Presented at 2012 FOEE Symposium,
National Academy of Engineering, Irvine, CA

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Why FBEI Modules?

- Technology-driven open-design
- Re-designable and re-configurable by Learners
- Multi-disciplinary content
- Web-based delivery
- Unique business model



FOEE Theme

Innovation, Curriculum, Delivery

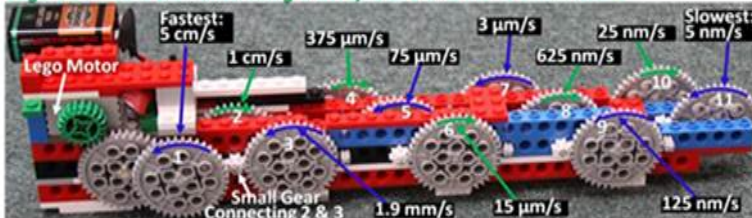
Educational Objectives

- Technology driven learning covering a number of areas
- Suitable for learners with different educational backgrounds, preparation levels & interests
- Global learning approaches
- Hands-on web-based learning

Learning Activities and Materials

- The FBEI modules cover the areas of energy, materials, math, computer switches, sensors, nano concepts, micro and nano fabrication, system integration, mindcontrolled games and systems, cognitive training, bullying, dancing etc.
- More examples of FBEIs appear Below:

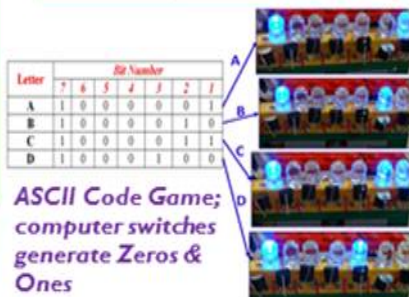
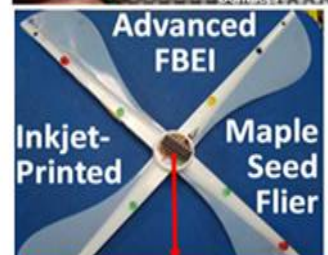
Lego Gear Train Demonstrating Macro, Micro and Nano Dimensions



Neural Eng.; brainwaves & MEMS probes



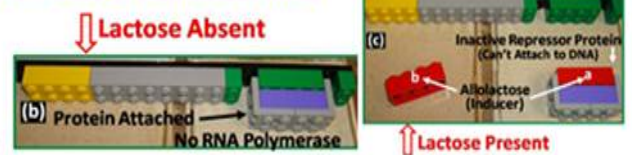
FBEI; NMOS computer switch



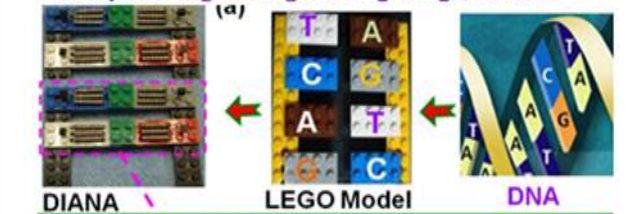
Course Execution/Development

- ECE 101: Introduction to Electrical and Computer Engineering, since Spring 2011
- New Courses Being Developed:
 - DIANA: DNA Inspired Active Network Arrays for hand-on computer engineering learning
 - Introduction to Engineering Using FBEIs
- Web-based national & global delivery of current and new course materials; hardware, software and user manuals

How does E. Coli detect milk?



Computer engineering learning using DIANA



Low-cost FBEI Math

