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## Gordon CenSSIS Educational Component at UPRM

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# Gordon-CenSSIS Educational Component at UPRM



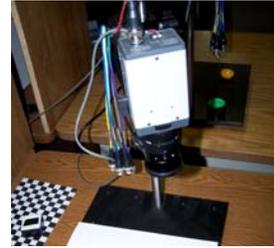
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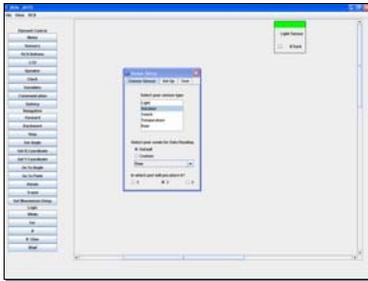
The education component of CenSSIS at UPRM is centered on the High-Tech Tools and Toys Laboratory. Most of the educational activities are carried out through this laboratory, which is currently undergoing remodeling and expansion. The laboratory serves as a host to the Introduction to Electrical Engineering course for freshman students, which in turn is used as the source for CenSSIS Scholars. In addition, the laboratory hosted the Engineering Electromagnetics pilot course and the Computer Vision course, and it is also used for several outreach activities. As part of the education activities, several students are selected every semester to participate in undergraduate research. Also, CenSSIS Scholars are selected from the very best students in the Introduction to Electrical Engineering course and are asked to help in the Tools and Toys Lab reviewing course modules. Finally, with three ERCs present at UPRM, a seminar series was developed to present the Centers work every two weeks. As part of the educational activities, a program is being developed for the LEGOs Mindstorms robotic system. A graphic interface is being developed to program the robots using the JAVA programming language platform. The program goal is to familiarize students with the programming techniques used in areas such as digital signal processing and sensing. The outreach program is aimed at high-school, middle school and elementary school students. Students are given an introduction to what is electrical engineering, a demonstration of a simple ground penetrating radar, and the building a basic electronic circuit with discrete components, given the circuit schematics. Students are also encouraged to consider an engineering career in their future.



*The outreach program seeks to motivate K-12 students to pursue careers in electrical engineering.*



*The High-Tech Tools & Toys laboratory serves as a host to the Computer Vision course*



*The LeJOS Initiative goal is to familiarize students with the programming techniques used in areas such as digital signal processing and sensing.*



*Two of the classes that have taken the INEL 3115 Introduction to Electrical Engineering Course in the last year.*



*Outreach students receive an introduction to what is electrical engineering, a demonstration of a simple ground penetrating radar, and build a basic electronic circuit with discrete components, given the circuit schematics.*



*A graphic interface is being developed program the robot. Simple enough to be understood by the undergraduates, yet flexible enough to manipulate the wide range of functions available.*



### INEL 3115

*The course has been taught now for 4 years and it is being evaluated to be included as a requisite in the Electrical Engineering curriculum.*



*The High-Tech Tools & Toys laboratory finished remodeling this semester. It now has new computers, oscilloscopes, signal generators and power sources.*



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