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Developing Arduino Coding Curriculum

Tyler Brown
University of Northern Iowa

Riley Bucheitte
University of Northern Iowa

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Author

Tyler Brown, Riley Bucheitte, and Timothy Kidd

Developing a STEM Arduino Coding Course

Student: Tyler Brown
Advising Professor: Timothy Kidd
Cooperating Teacher: Riley Bucheitt

Objectives

- Develop course content developed from online manuals
    - We use the parallax BOE online manual and the ARDX online manual
    - Modular courses. Can be outfitted for a quarter long course or a semester long course
- Learn the effectiveness of the developed curriculum in teaching students basic coding and electronics.
    - Using student results on pre and post tests

Results - The Tests

We have 2 separate tests, one for using the coding program and the other for using the electronic components that are seen within the course.

Below is an example for the

1. What is the purpose of a resistor?- Understand
   a. Reduce electrical current
   b. Increase electrical current
   c. Stop electrical current
   d. Produce electrical current
   e. None of these

Results - The Course Units

- We have developed 8 units with a 2 week final project
  - First unit is from the Parallax BOE manual and the rest uses the ARDX manual
  - Some chapters in the ARDX manual are skipped
- These unit range from talking to the Serial Monitor within the program itself, as well as exporting code to an arduino microcontroller.
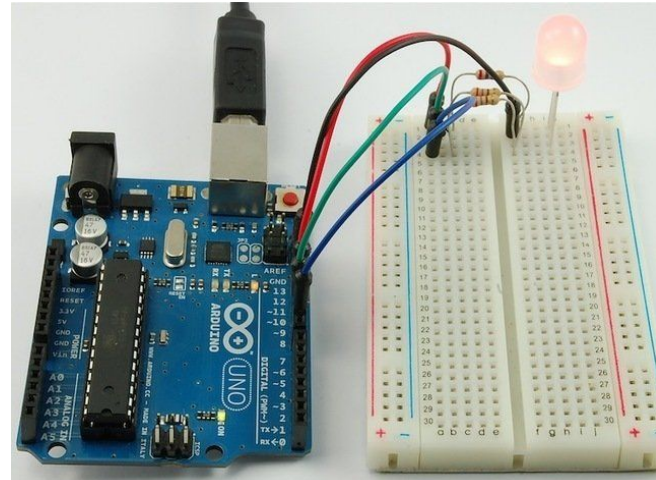
Conclusion - Moving Forward

- Cooperating teacher will teach this course for this next school year
  - He will administer the pre and post tests to gain a measure of much of an impact this class has on student knowledge
  - He will also be recording his impressions of what is happening in his class throughout the course - This will include tweaks that he believes would be appropriate to improve the class
- Analyzing data we get from the pre and post tests
- Looking at student feedback for what they would want to see during the course

Thank You!

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