ADDING A ROBOT PROJECT TO A CS1 COURSE

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ABSTRACT
Beginning programming courses can take many forms – different order of topics, different languages, different texts, and different objectives. Because the material to be covered can often be very detailed and abstract, student interest and attention is hard to maintain. Adding a hands-on project to the course offers the instructor the ability to have the students focus on a fun project while still learning the rubrics of programming.

Categories and Subject Descriptors
K.3.2 [Computer and Information Science Education]
Computer Science Education

General Terms
Experimentation

Keywords
Python, Scribbler robot, CS1, GUI

1. INTRODUCTION
In teaching programming for over 40 years, I have always tried to keep my students interested and participating in their learning experience. In the past, I have asked the students to do a GUI or Graphics project as the last assignment. I usually give very little additional instruction in Java and show multiple samples of possible ideas. Many of the projects were partially coded in a lab book series I have used so, in many cases, there wasn’t much additional code for the students to add to the project. In keeping with constantly updating my programming courses, I switched to offering a robot project this past semester. I chose the Scribbler robot and taught one hour of Python before assigning the project. The students formed two person teams and ran with it. They were excited with all that they were able to do in a fairly new area of programming. They also learned that it was quite easy to learn a second programming language after learning the first.

2. STATEMENT OF PURPOSE
This workshop/tutorial will describe the experience of adding a robot project to an existing CS course, specifically CS1. It will also discuss results which show that students rapidly learned to work with a new, though similar programming language. This workshop will provide educators with useful tips on integrating a robot programming project into the instruction and it will present statistics on the student evaluations of the project. Participants will also see a video showing student project results.

3. OBJECTIVES
Upon completion of the workshop, a participant will be able to:

- a. Share my experience of adding a robot project to my beginning and intermediate programming classes.
- b. Provide information on different robots that can be used for the project, and the costs and resources with each choice.
- c. Explain the choices I made and how I prepared the students for this project.
- d. Describe the pros and cons of this project in its preparation and execution.
- e. Review results of the student evaluations of this project.

4. PREREQUISITES
None.

5. INTENDED AUDIENCE
College and high school professors teaching beginning and intermediate programming classes and administrators involved in these courses.

6. DURATION
75 minutes

7. MATERIALS NEEDED
Internet availability.

8. RESOURCES TO BE HANDED OUT
Instruction set for Scribbler robot which I will provide.

9. REFERENCES