

Arduino® Engineering Kit Rev 2

Product Review



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Michael is part of the Chair of the Department of Mechanical Engineering and an associate professor at the University of West Florida. He teaches Dynamic Systems and Control. Michael loves to help students to learn and to shape people who can change the world through technological innovation.

1. What was your reaction when you first held and opened the kit?

I was excited, it looked like a lot of neat stuff.

2. How did you find the unboxing process?

I found the unboxing process easy.

3. How easy did you find it to get started? How was the getting started section?

It was a bit confusing figuring out where to find the right directions. I also had some trouble with the battery charging system at first, but then after playing with it a bit, I got it to work.

4. What needs do you expect the kit to solve for educators?

The need for hands-on projects that connect computing, modeling and implementation of control ideas.

5. What needs do you expect the kit to solve for students?

Allow them to see the whole process from theory to design to system implementation.

6. What were your likes, and reasons for those?

It is one of the best ways for students to connect control theory to an actual project

7. Did you find any of the projects especially good? If so, why?

I personally liked the motorcycle project, The motorcycle project was a very practical way for students to visualize control. Everyone can relate and see the objective, which helps to motivate learning. And when you get it to work it is a great feeling of success. The project ties together the hardware, software and control concepts in a unique way.

8. Is there anything that exceeded your expectations?

The amount of integration with MATLAB

9. How would you describe the kit to an educator who hasn't heard of it?

Very interesting collaboration between Arduino and MATLAB. A great idea that might be a good fit for some students.

10. How would you describe the kit to a student who hasn't heard of it?

A nice way to implement controller designs with real systems.

Michael tested the kit with his engineering students, and asked them to provide reviews of the projects. This is what they had to say:

Drawing Robot

The personal physical challenges that I had, combined with a lack of knowledge and understanding of MATLAB, contributed to the frustration of learning. With that said, I did gain quite a bit of knowledge through practice in using MATLAB, and my first in depth experience with robotics.

My personal suggestion for use of this project in future classes would start with a suggestion of teams of two or three at a maximum so that potential physical challenges or the lack of personal knowledge and experience could be mitigated through working collectively. I personally think that this level of project would be helpful for most students

A Webcam Controlled Rover

The Mobile Rover project is a good and practical project to show how dynamic systems are used in the real world. This project does this by teaching you how to move the rover in complex paths using the underlying kinematic equation to relate the speed of the wheel to the rover velocity and the direction of travel.

It also teaches you how to code using MATLAB, by putting those kinematic equations into a form that the Arduino is able to use to move. The webcam controlled rover also lets you get hands-on experience with actually building something and putting it to the test.

For future students who do this project, I would recommend making sure that you have the fundamentals of dynamic systems down to make the project easier. Meaning that you should know how to apply and use the kinematic equations.

I feel like this project was very beneficial in showing real world practices of Dynamic Systems.