

Email Message

Dear All,

This week our group focused on the arduino and getting the linear actuator to function. The circuit diagram provided last week was actually incorrect, an arduino cannot power the actuator on its own. Therefore, we bought a relay module, which allows us to use an arduino to control a device that requires much more voltage and current than the arduino can normally provide. We can also control the polarity of the actuator in the arduino code, so its expanding and contracting is completely automated. In the attached notebook, there is an image of the complete setup of the circuit, a little more information on relay modules, and the code for the arduino.

Sincerely,

Kyle Sachdev, Brian Dallesasse, and Taylor
Hughes

Project created on 06.09.2016 02:03.

Report for project Senior Design

Task created on 26.01.2017 19:17.

Parts

No due date

No description


Task tags: *No tags*

* Created by Kyle Sachdev on 17.02.2017 02:06.

- SunFounder 2 Channel DC 5V Relay Module (\$7)
 - Allows us to use arduino to control a linear actuator which requires higher voltage and current than the arduino can supply and switch polarity
 - A Relay is a switch which is operated by an electromagnet. The electromagnet is activated with a low voltage, for example 5 volts from a microcontroller and it pulls a contact to make or break a high voltage circuit.

 Comments for result

No comments

 Samples of task Parts

No samples


Task created on 10.02.2017 03:09.

Arduino and Circuit

No due date

No description

Task tags: *No tags*

 Complete circuit for linear actuator [IMG_0499.JPG]

Uploaded by Kyle Sachdev on 17.02.2017 01:58.



 Comments for result Complete circuit for linear actuator

No comments

* Arduino Code Created by Kyle Sachdev on 17.02.2017 01:44.

```
const int relay1 = 6; const int relay2 = 7;

void setup() { // put your setup code here, to run once: pinMode(relay1, OUTPUT);
pinMode(relay2, OUTPUT); }

void extendActuator() { digitalWrite(relay1, HIGH); digitalWrite(relay2, LOW); }
void retractActuator(){ digitalWrite(relay1, LOW); digitalWrite(relay2, HIGH); }
void stopActuator() { digitalWrite(relay1, LOW); digitalWrite(relay2, LOW); }

void loop() { // put your main code here, to run repeatedly: extendActuator();
delay(5000);

stopActuator(); delay(2000);

retractActuator(); delay(5000);

stopActuator(); delay(5000);

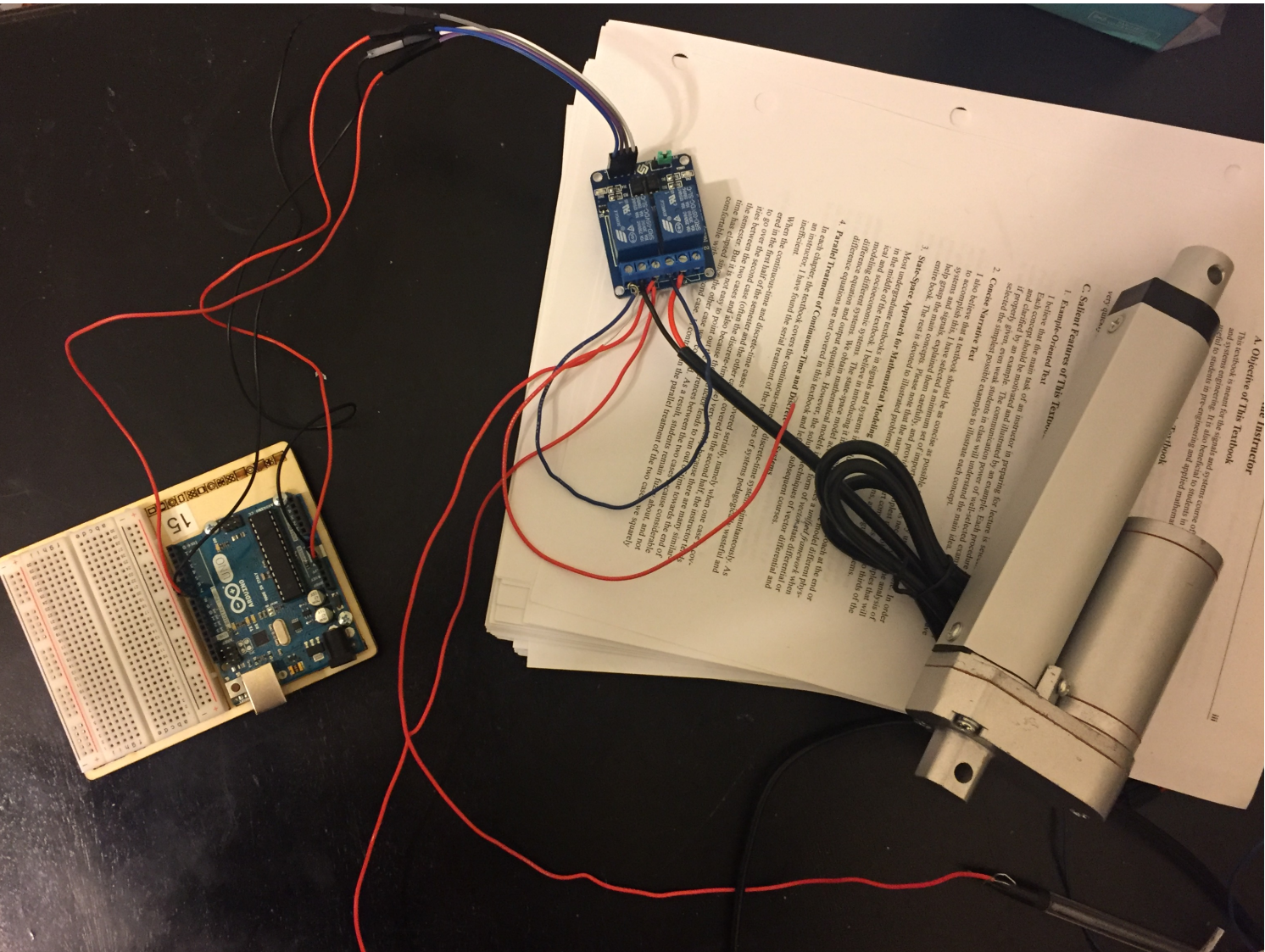
}
```

Comments for result Arduino Code

Kyle Sachdev on 17.02.2017 at 01:47: Expands actuator for set amount of time, pauses for set amount of time, retracts for set amount of time, pauses for set amount of time then cycle repeats

* Created by Kyle Sachdev on 17.02.2017 00:35.

- Circuit diagram previously added is incorrect
- arduino cannot power linear actuator on its own
- Using a relay board with the arduino
 - allows us to use the processing power of arduino with a device that needs a higher voltage and current
 - also allows us to switch the polarity of the linear actuator so it can both expand and contract



A. Objective of The Textbook

This textbook is aimed for the signals and systems course of electrical engineering. It also intends to introduce students to various aspects of pre-engineering and applied mathematics.

C. Salient Features of This Textbook

1. Example-Oriented Text

Each chapter shows a main task of an instructor in preparing for lecture is to develop a set of examples. The author has carefully selected the most important and interesting examples to illustrate each concept.

Most of the examples are worked out in detail. The author has also provided a set of problems for the students to solve. The author has also provided a set of problems for the students to solve.

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