

Abstract

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In this design challenge, there were no obstacles until my original rover controller, a Raspberry Pi, was fried because a voltage regulator is needed when you power the Pi with batteries. As a substitute for the Pi, the Arduino Uno was brought in. The Uno is a microcontroller good for beginners in coding and electronics. After assembling the robot and adding the top layer, there was no display/notification for the sensors and their readings so an LCD screen was added for the temperature and humidity sensor along with a buzzer for the CO sensor and a LED for the photoresistor module. The next problem was uploading the code to the Arduino. The computer used originally was not recognizing the Uno for what it was, meaning the code was not able to be uploaded. To take care of that, another Pi was brought into the equation. This time, the Pi was not fried and worked perfectly to upload the code. (Raspberry Pis are small computers) The robot was receiving code just fine. When I tried to upload the project code, I was getting an 'avrdude: content does not match: verification error' . Then, all I could do was to double check everything. I disconnected the LCD and tried to upload the code, same error. I disconnected the CO monitor next, uploading the code, and this time there was no error! I rewired everything I had taken off really carefully and there was no error, but the monitor was not doing its job monitoring. After more testing, I found that the CO monitor was not getting enough power because of the amount of things on the breadboard, so it only had enough power to turn on its LED that signifies it is on. At that point I decided adding more power would probably not be safe for the other components so I got rid of the CO monitor and buzzer to make sure the LCD and photoresistor were getting enough power. I uploaded the code again and it worked! The rover was not quite what I imagined it to be, but it still accomplished most of what I wanted it to do, which is a success to me, because after the first error in uploading , I thought it might never work at all, but after a bunch of rewiring, it did.

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