Title: VOLTAGE REGULATION

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Intro

In this report a very important question will be answered, namely how will we make sure the nodeMCU gets enough voltage to keep working.

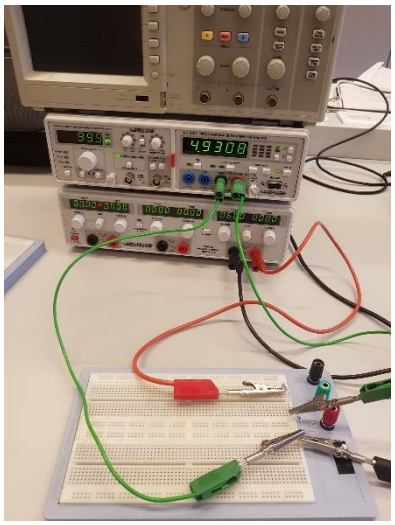
Materials and Methods

Laptop
Oscilloscope
Component

Information & conclusion

A few ways we brainstormed to make sure our nodeMCU will get the required 5V (stable) is.

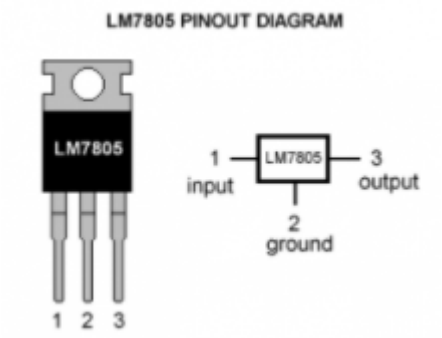
1) Using a voltage divider
2) Using a voltage regulator



We tested our voltage divider in the lab and we saw that we can generate a stable 5V output for our nodeMCU.

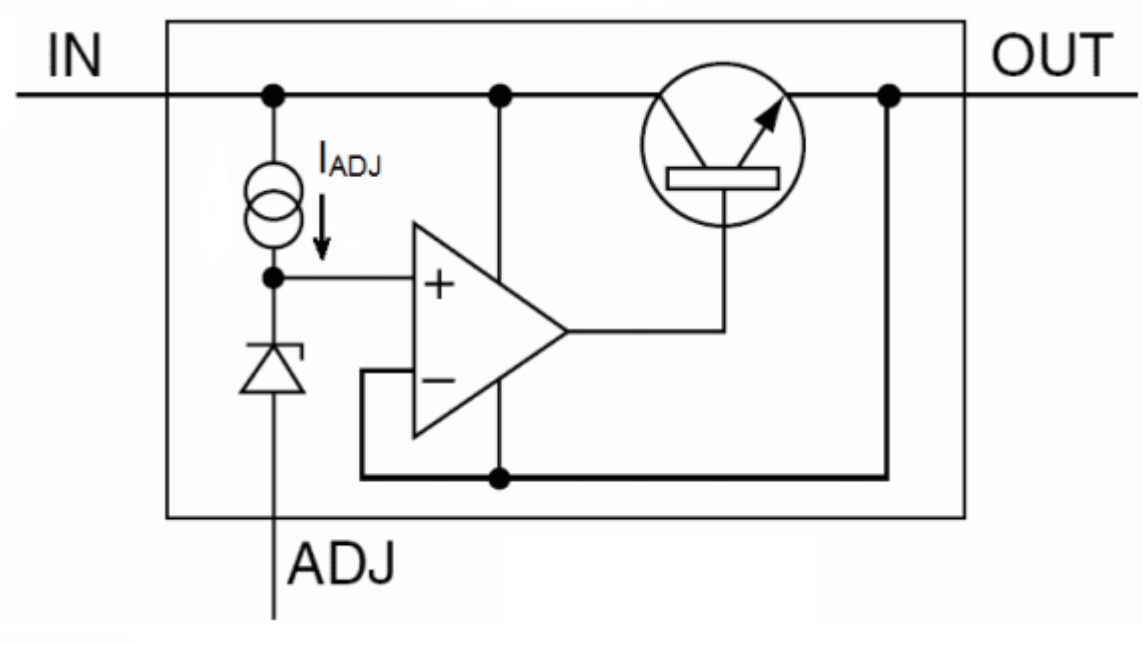
For this we used an input voltage of 6V which we figured out later on that is too much.
Our RC car can only provide us with 4.5V so we have to use batteries that will give us 7V in total and then use this method OR use a 78XX.

In our case the 7805 fits because it is fitted for 5V output.
This is a small component with 3 pins.



Using an input of minimum 7 volts and a maximum of 35V we can use this to feed our nodeMCU.
This will also guarantee the safety of our nodeMCU.

These types of voltage regulators have this sort of circuit:



This is the most basic form of such a circuit with an op-amp and a transistor. It guarantees the voltage over Out and Adj. The zener diode guarantees the voltage on the + side of the op-amp and since an op-amp tries to make + = - this will go over to that.

To conclude everything together we will have to use an alternative power source and connect this to the 78xx and to the nodeMCU. The power of our rc-car wont be sufficient enough.

Referencelist

Powerpoint made by Raf Catthoor.

http://www.instructables.com/id/78xx-Regulators-Ics/

http://www.ecobionlabs.com/index.php?page=78xx-family-voltage-regulators