Notes on experimental setups

Student Group

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Notes on experimental setups

The relevant notes on the experimental setups will be reviewed before the experiment.
The following only addresses the most important ones:

The most common cause of errors: messy work

- Prototype development and experiments do not mean “botching”. Pay attention to a clean setup.
- Pay attention to the correct color coding of the wires:
  - red = positive (supply) voltage (“hot wire”)
  - black = ground, earth
  - blue or another color = negative supply voltage, digital signals, etc.

Procedure for experiments with prototype setups

1. Populate the breadboard
   1. Use the shortest possible wires on the breadboard.
   2. If you place through-hole components on the breadboard, try to mount them as flat and short as possible so you still have space for components placed across and for additional connections.
   3. If you use ICs (“chips”) on the breadboard, be sure to add 100 nF capacitors close to the supply pin. Clocked ICs can disturb the supply voltage, and the capacitor can reduce this significantly.
   4. Further tips on using the breadboard can be found at mikrocontroller.net.
2. Power supply
   1. before you connect the power supply, you should
      1. reduce the maximum current
      2. have the breadboard fully populated and the circuit fully assembled
   2. First connect the lead to the load, then to the power supply.
      This prevents shorting the power supply (if it is accidentally switched on).