

# Circuit Diagrams

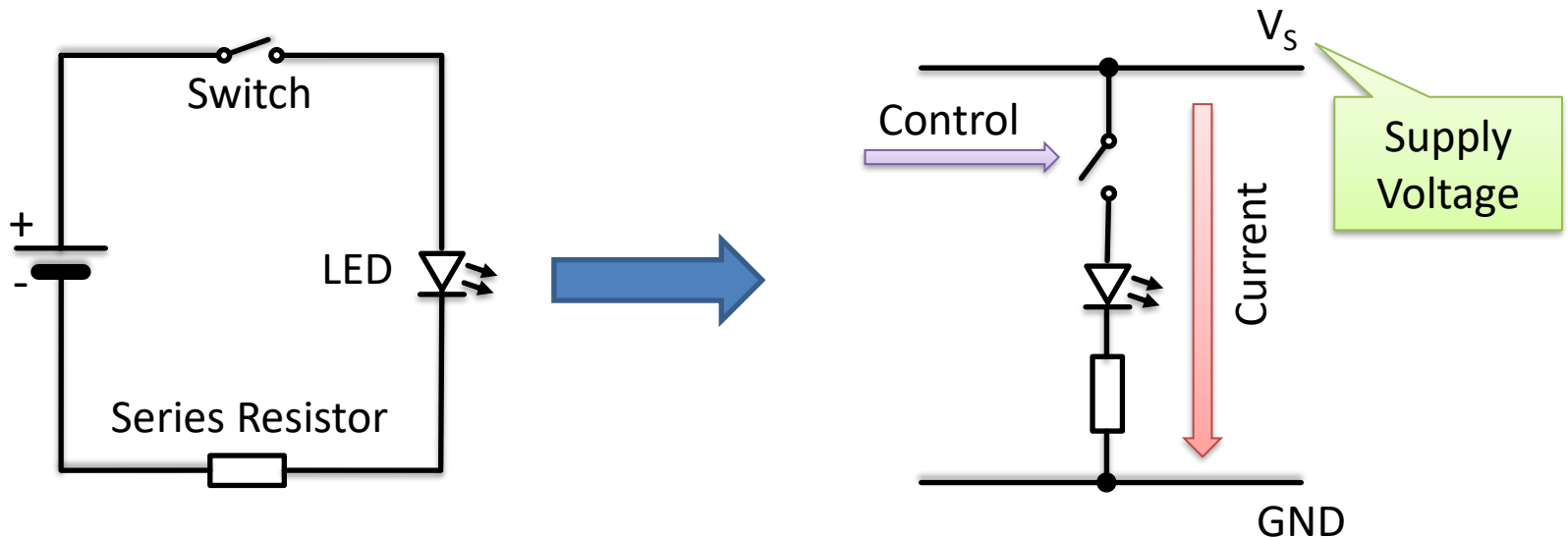
Networks and Embedded Systems

First Grade Level

Wolfgang Neff

# Circuit Diagrams (1)

- In practice circuit diagrams are used
- For this the voltage source is split

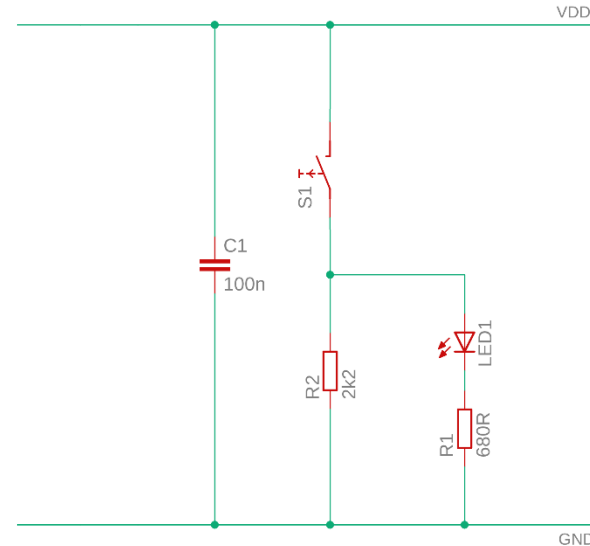


# Circuit Diagrams (2)

- The current source (+) is at the top
  - Labeled by  $V_{CC}$ ,  $V_{DD}$  etc.
- The current sink (-) is at the bottom
  - Labeled by Ground, GND,  $V_{SS}$  etc.
- The current flows from top to bottom
- The loads are between
- The control comes from the left

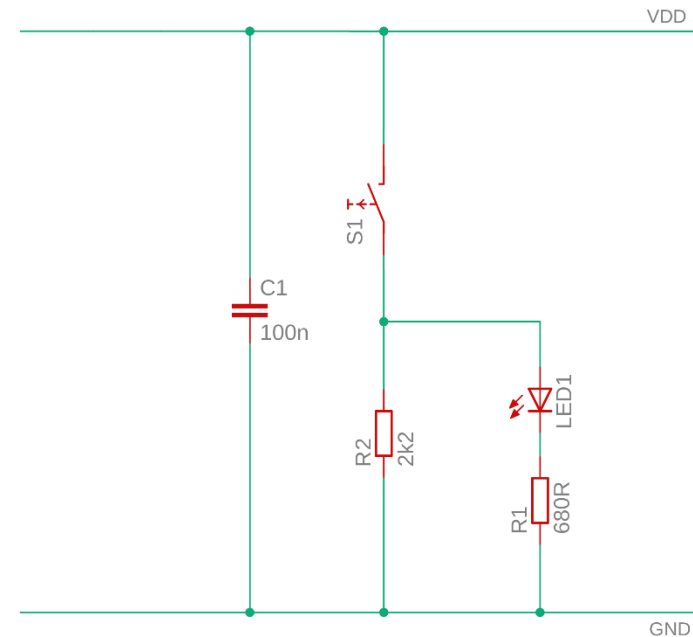
# Circuit Diagrams (3)

- In a circuit diagram ...
  - ... there are components
- Every component ...
  - ... has a name
  - ... has optionally a value
- For the values one uses ...
  - ... the unit prefix as decimal point or ...
  - ... the unit symbol if there is no prefix



# Circuit Diagrams (4)

- In this circuit diagram there are:
  - A capacitor C1
    - The Capacity of C1 is 100 nF
  - A switch S1
  - A light-emitting diode LED1
  - The resistors R1 and R2
    - The resistance of R1 is 680  $\Omega$
    - The resistance of R2 is 2.2 k $\Omega$



# Control

- Who controls?
  - In the last circuit it is the switch
- How does it control?
  - It opens or closes the circuit
- Who gets controlled?
  - The light-emitting diode gets controlled
- What is its effect?
  - The light-emitting diode shines or not