Digital Electonic

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2nd semester

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1. Digital Electonic Basics
   - Considering a real problem

Digital Electronics Basics
Considering a real problem

Problem

A tank is filled by 2 pipes : V_1 and V_2. We consider 3 levels

- Warning (W)
- Bottom (B)
- top (T)

When level is behind W, V_1 et V_2 are opened.
When level is between W and B, only V_1 is opened.
When level is between B and T, only V_2 is opened.
When level is upper T, we close the pipe.

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How to do?

- Make a drawing

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Considering a real problem

How to do?

- Make a drawing
- Make the truth table

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How to do?

- Make a drawing
- Make the truth table
- Reduice complexity by using Karnaugh table and rules

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Considering a real problem

Implementation using Electronic component

- Which Family? CMOS or TTL technology?

Figure: TTL 7406

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Techno - information

TTL

- Input voltage 5V +-5%
- 0 : 0.4V–0.8V
- 1 : 2.4V–2.8V
- TP : 10ns for "N" series and 1.5ns for "AS"

CMOS

- Input voltage 3 to 18v
- 0 : 0.05Vcc–0.45Vcc
- 1 : 0.55Vcc–0.95Vcc
- TP : depending of Vcc

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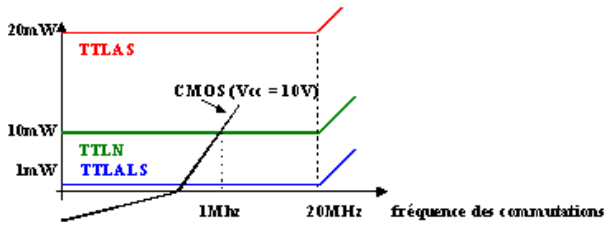
Techno - information



Digital Electronics Basics
Considering a real problem

Implementation using Electronic component

- Which Family? CMOS or TTL technology?
- Find components you need and correspoding datasheet

Figure: TTL 7406

Digital Electronics Basics
Considering a real problem

Implementation using Electronic component

- Which Family? CMOS or TTL technology?
- Find components you need and correspoding datasheet
- Make the wiring of the circuit

Figure: TTL 7406