Tutorial 2

October 3, 2025

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- This tutorial:
  - Driving a motor
  - The I^2C protocol

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  - Stop: SCL high, SDA low $\rightarrow$ high.

Exercise 1

A microcontroller connected to an I^2C bus wishes to know whether there is a device of adress `0x3A` on the bus. How can it do this ? Draw a small diagram explaining the solution.

Exercise 2

Two microcontrollers and a counter (with I^2C interface) are connected to an I^2C bus. Both microcontrollers may try to increment the counter at any time. If the line is busy while a microcontroller tries to increment the counter, it will wait until the line is free and try incrementing again. Adresses are the following:

- MCU 1: `0x01`
- MCU 2: `0x02`
- Counter: `0x20`

The message corresponding to an increment is `0xFF`. How can one implement a strategy to make sure that each increment request is eventually served (if we assume that the bus is free most of the time)?

Exercise 2b

Draw a small diagram displaying your solution if MCU 1 wants to increment the counter once.