**International University of Ecuador**
**Faculty of Technical Sciences**

School of Mecatronics engineering

# Industrial Automatization

*Lab's report No 3: Timed relay applications*

Author:
Sebastian Osorio
Pablo Guacho

Sep 2022 - Jan 2023

# Lab's report No 3*

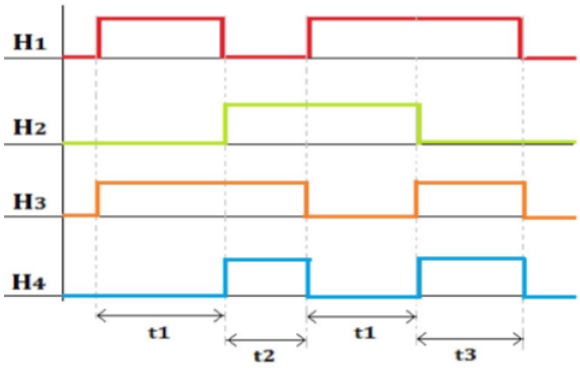
Sebastian Osorio[1][0000−0003−0106−5482] and Pablo Guacho[1]

International University of Ecuador, Quito Av. Jorge Fernández and Av. Simón Bolívar 170201, Ecuador seosoriogu@uide.edu.ec https://www.uide.edu.ec/

**Statement** Design the control circuit for the control of four three-phase motors, which work under the following condition:

- The motors are connected in star and the voltage applied to the motors is 380 V.here are four light signals H1, H2, H3 and H4 to indicate the operation of the motors.
- The circuit will only have a start button S1 and an S0 for emergency stop.
- H1, H2, H3 and H4 will be controlled by contactors K1, K2, K3 and K4 and their the operation is described in the figure 1.

**Fig. 1.** Operation cycle




## 1 Design

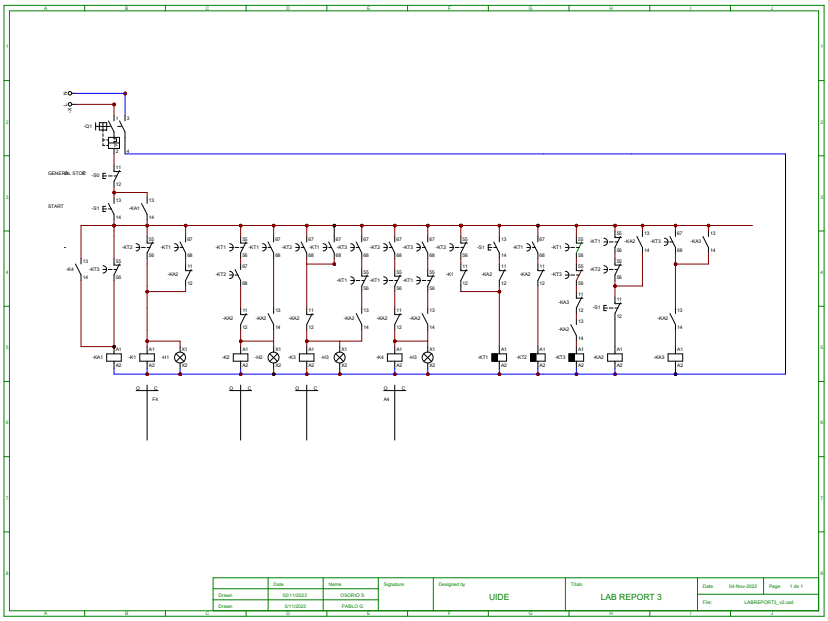
It can be found in the following figure 2 the design of the circuit. The circuit is designed to be able to represent the requested sequence.

## 2 Range of operation

In this case the operation is not affected by the range of time t1>t2 or t1<t2. In fact it was design taking into account that all the times are the same such as t1=t2=t3

* UIDE.

**Fig. 2.** Circuit design




## 3 Conclusion and recommendations

The circuit was designed and tested with CADeSIMU. The circuit was tested to be able to follow the sequence of operation described in the figure 1. The circuit was tested with the following conditions for t1>t2 or t1<t2. It works in both cases. It is recommended to use the same time for all the times t1=t2=t3. However, it present a little error at the end it shuts down immediately the timer t3 because if the off delay characteristics.