

# CTU Counter

**Spoken Tutorial Project**

<https://spoken-tutorial.org>

**National Mission on Education through ICT**

<http://sakshat.ac.in>

**Harsha Priyanka**

**IIT Bombay**

**25 August 2020**



# Learning Objectives



# Learning Objectives

- Count up (CTU) counter



# System Requirements



# System Requirements

- **Ubuntu Linux 18.04 OS**



# System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**



# System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**
- **OpenPLC version 1 Mainboard**



# System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**
- **OpenPLC version 1 Mainboard**
- **24V, 2A SMPS**





# System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**
- **OpenPLC version 1 Mainboard**
- **24V, 2A SMPS**
- **USBasp programmer**



# System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**
- **OpenPLC version 1 Mainboard**
- **24V, 2A SMPS**
- **USBasp programmer**
- **Traffic Light module**



# System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**
- **OpenPLC version 1 Mainboard**
- **24V, 2A SMPS**
- **USBasp programmer**
- **Traffic Light module**
- **Switchboard module**



# Pre-requisites



# Pre-requisites

- **Working of Contact, Coil and RESET instructions**



# Pre-requisites

- Working of Contact, Coil and RESET instructions
- If not, please refer to the relevant tutorials in this series from <https://spoken-tutorial.org>



# Prerequisites - Hardware setup



# Counters

## 3 types of counters





# Counters

## 3 types of counters

### ① Count up (CTU)



# Counters

## 3 types of counters

- 1 Count up (CTU)
- 2 Count down (CTD)



# Counters

## 3 types of counters

- 1 Count up (CTU)
- 2 Count down (CTD)
- 3 Count circular (CTC)



# Resetting CTU



# Resetting CTU

CTU counters can be reset using **RES** instruction



# Summary

- **Count up (CTU) counter**



# Assignment

- 1 Draw a ladder diagram to turn on an LED

**Condition:** When the switch is pressed for more than or equal to 5 times



# Assignment (cont.)

- 2 Include logic to reset the LED  
**Hint:** Use another Contact and RES instruction





# About the Spoken Tutorial Project

- Watch the video available at [https://spoken-tutorial.org/What\\_is\\_a\\_Spoken\\_Tutorial](https://spoken-tutorial.org/What_is_a_Spoken_Tutorial)
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



# Spoken Tutorial Workshops

## The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to [contact@spoken-tutorial.org](mailto:contact@spoken-tutorial.org)



# Forum questions

- Questions in THIS Spoken Tutorial?
- Visit <https://forums.spoken-tutorial.org/>
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer

**You will have to register to ask questions**



# Forum for specific questions

- Questions not related to the Spoken Tutorial?
- Do you have general / technical questions on the Software?
- Please visit the FOSSEE Forum  
<https://forums.fossee.in/>
- Choose the Software and post your question



# Acknowledgements

**Spoken Tutorial project is supported by**

- **National Mission on Education through ICT (NMEICT)**
- **Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching**

**Initiatives of MHRD, Government of India**



# THANK YOU!

For more Information, visit our website  
<https://fossee.in/>

