The Spoken Tutorial Project

- Self-explanatory: uses simple language
- Audio-video: uses multisensory approach
- Small duration: has better retention
- Learner-centered: learn at your own pace
- Learning by doing: learn and practise simultaneously
- Empowerment: learn a new FLOSS (Free/Libre and Open Source Software)

Target Audience

OpenPLC can be used by anyone who is interested in PLC programming

Workshops

The Spoken Tutorial Project Team conducts workshops on OpenPLC with LDmicro and other FLOSS using spoken tutorials and gives certificates to those who pass an online test.
For more details, please visit
https://spoken-tutorial.org

Forum

We have developed a beginner friendly Forum to answer specific questions pertaining to any part of a particular tutorial.
For more details, please visit
https://forums.spoken-tutorial.org.

The Spoken Tutorial Project
is funded by the
National Mission on Education through
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Ministry of Education,
Government of India.

Contact us

Email: contact@spoken-tutorial.org
Website: https://spoken-tutorial.org

Forum help available to all learners

Content available in 22 Indian languages

IIT Bombay

Spoken Tutorial

https://spoken-tutorial.org

Scan the QR code to
visit the Spoken Tutorial website

Open PLC with LDmicro

National Mission on Education through
Information and Communication Technology
(NMEICT)

www.sakshat.ac.in

Funded by MoE, Government of India.

About OpenPLC

- OpenPLC is an affordable open source hardware developed at IIT Bombay by the FOSSEE team

- It is designed to get hands-on PLC programming experience at an affordable cost

- OpenPLC can be programmed using ladder logic

About LDmicro

- LDmicro is an open source software

- LDmicro was available only for Windows initially

- The FOSSEE team from IIT Bombay ported it and made it available for Linux OS also

- It is used to draw ladder diagrams and generate .hex files for OpenPLC

Installation of LDmicro on Ubuntu Linux / Windows OS

Download and Install from the below link:

https://openplc.fossee.in/downloads

OpenPLC hardware schematic and gerber files for making PCBs are available at links given below:

https://static.fossee.in/openplc/Schematic.pdf

https://static.fossee.in/openplc/installation-files/Gerber_Files.zipownload

Features of OpenPLC

- OpenPLC has all the capabilities of an industrial PLC and is simpler to work with

- It is a modular hardware

- It uses ladder logic programming, which is one of the easiest and efficient

- For example, it can be interfaced with electronic modules like relay modules etc.

- These are readily available in the market

Who can use OpenPLC?

OpenPLC can be used by anyone who is interested in PLC programming

For example:

- Polytechnic, Engineering and other technical students

- Any hardware professional

- Individuals who are interested in hands-on experimentation

Spoken Tutorials in OpenPLC with LDmicro

Basic Level:
- Overview of OpenPLC with LDmicro
- Installation of LDmicro on Linux
- Installation of LDmicro on Windows
- Introduction to LDmicro
- Simulation and Compilation
- OpenPLC Mainboard
- Programming OpenPLC
- OpenPLC Traffic Light and Switchboard Modules
- Normal Coil

- Normal Contact
- Negated Coil and Negated Contact
- Implementing NOT and AND logic gates
- Implementing OR and XOR logic gates
- Internal Relay and Output pin
- SET and RESET Coils

Intermediate Level:
- OneShot Instructions
- Arithmetic Instructions
- Move Instruction
- Compare Instructions
- TON and TOFF Instructions
- RTO Timer Instruction
- CTU Counter
- CTD Counter
- CTC Counter
- OpenPLC Heater module
- A to D Converter Read Instruction
- PWM Instruction

Students can perform OpenPLC experiments without OpenPLC hardware using the simulation mode in LDmicro. But we encourage having a hardware kit for better knowledge of the subject.

OpenPLC hardware kit consist of:
1. OpenPLC Mainboard (1 no.)
2. 24V, 2A SMPS (1 no.)
3. USBasp programmer (1 no.)
4. Traffic Light module (1 no.)
5. Switchboard module (1 no.)
6. Heater module (1 no.)
7. Jumper wires
8. Relimate Connectors