

# Arduino Programming with Python

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

Nirmala Venkat  
IIT Bombay

7 August 2021



# Learning Objectives



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- **Arduino - Python toolbox**



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- **Arduino - Python toolbox**
- **Interfacing Arduino with Python**



# System Requirements

**To record this tutorial, I am using**



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To record this tutorial, I am using

- **Ubuntu Linux OS version 18.04**



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- **Ubuntu Linux OS version 18.04**
- **Arduino Shield**



# System Requirements

To record this tutorial, I am using

- Ubuntu Linux OS version 18.04
- Arduino Shield
- Arduino Uno Board



# Pre-requisites

**To follow this tutorial, you should go through the below Arduino Spoken tutorial:**



# Pre-requisites

To follow this tutorial, you should go through the below Arduino Spoken tutorial:

- **Getting Ready for Arduino FLOSS**



# Getting Ready for Arduino FLOSS

**In the above tutorial, you will learn**



# Getting Ready for Arduino FLOSS

**In the above tutorial, you will learn**

- **How to download the e-book and code files required for the experiments**



# Getting Ready for Arduino FLOSS

In the above tutorial, you will learn

- How to download the e-book and code files required for the experiments
- How to upload and compile Arduino programs in Arduino IDE



# Getting Ready for Arduino FLOSS

In the above tutorial, you will learn

- How to download the e-book and code files required for the experiments
- How to upload and compile Arduino programs in Arduino IDE
- About FLOSS Firmware



# About Python

- If you are not familiar with Python, go through the Python spoken tutorials on <https://spoken-tutorial.org>



# Points to be noted:



# Points to be noted:

- **Launch Arduino IDE**



# Points to be noted:

- **Launch Arduino IDE**
- **Check the port**



# Points to be noted:

- **Launch Arduino IDE**
- **Check the port**
- **Upload the FLOSS firmware**



# Points to be noted:

- **Launch Arduino IDE**
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# Points to be noted:

- **Launch Arduino IDE**
- **Check the port**
- **Upload the FLOSS firmware**
  - **In the Arduino IDE, upload the file available at [Origin/tools/floss-firmware/floss-firmware.ino](#)**



# About Arduino - Python toolbox



# About Arduino - Python toolbox

- **By default, Python does not have the capability to connect to Arduino**



# About Arduino - Python toolbox

- By default, Python does not have the capability to connect to **Arduino**
- We have created a package that makes use of the functions available in `pyserial`



# About Arduino - Python toolbox

- **These functions are required to run various experiments on the Arduino Uno board**



# About Arduino - Python toolbox

- **These functions are required to run various experiments on the Arduino Uno board**
- **It also establishes a serial communication with Arduino**



# Points to remember:



# Points to remember:

- **Whenever you plug the Arduino Uno board into the computer, check for the port**



# Points to remember:

- Whenever you plug the Arduino Uno board into the computer, check for the port
- Then execute the commands required for read-write permission



# Points to remember:

- Don't upload any Arduino program after uploading the FLOSS firmware to Arduino Uno board



# Points to remember:

- Don't upload any Arduino program after uploading the FLOSS firmware to Arduino Uno board
- This would overwrite the FLOSS firmware



# Points to remember:

- **Check if the Python `test_firmware.py` is properly running or not**



# Summary

**In this tutorial, we learnt about**

- **Arduino - Python toolbox**
- **Interfacing Arduino with Python**



# About the Spoken Tutorial Project

- Watch the video available at [http://spoken-tutorial.org/What\\_is\\_a\\_Spoken\\_Tutorial](http://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 for specific questions

- Do you have questions in **THIS Spoken Tutorial?**
- Please visit <http://forums.spoken-tutorial.org>
- Choose the minute and second where you have the question
- Explain your question briefly
- Someone from our team will answer them



# Acknowledgements

- **Spoken Tutorial project is funded by Ministry of Education (MoE), Govt. of India**



# Thank You

Thanks for joining  
<https://spoken-tutorial.org>

