

Arduino Programming with Python

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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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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- **Ubuntu Linux OS version 18.04**



System Requirements

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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**
- **Check the port**
- **Upload the FLOSS firmware**



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](https://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
- 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



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

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Thank You

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

