

# Mixing Assembly and C programming

Spoken Tutorial Project

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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IIT Bombay

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# Learning Objectives



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- Write a function in **Assembly** routine to perform initialisation



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- Write a function in **Assembly** routine to perform initialisation
- Call that **Assembly** routine in **AVR-GCC** program to blink the Dot LED of the Seven segment display



# Pre-requisites



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- **AVR-GCC**





# Pre-requisites

To follow this tutorial, you should have basic knowledge of:

- Electronics
- AVR-GCC
- **Assembly programming**



# System Requirements



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- **Arduino UNO Board**



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- **Arduino UNO Board**
- **Ubuntu Linux operating system 14.04**



# External Devices



# External Devices

- **Breadboard**



# External Devices

- Breadboard
- Seven segment display



# External Devices

- Breadboard
- Seven segment display
- 220 ohm Resistor





# External Devices

- Breadboard
- Seven segment display
- 220 ohm Resistor
- Arduino UNO Board



# External Devices

- Breadboard
- Seven segment display
- 220 ohm Resistor
- Arduino UNO Board
- Jumper Wires



# Summary

- Write a function in Assembly routine to perform initialisation
- Call that Assembly routine in AVR-GCC program to blink the Dot LED



# Assignment

- **Change the above program to increase the delay**
- **Observe the delay in the blinking of the Dot LED**



# 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

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- It is supported by the National Mission on Education through ICT, MHRD, Government of India
- More information on this Mission is available at

<http://spoken-tutorial.org/NMEICT-Intro>

