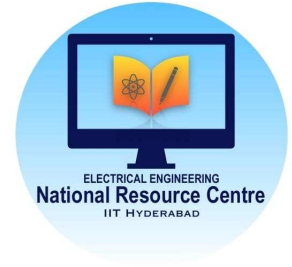




Embedded C through AVR-GCC



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Abstract—This manual shows how to control an led using AVR-GCC. AVR-GCC is a C compiler for the Atmega328p.

1 COMPONENTS

Component	Value	Quantity
Arduino	UNO	1

2 BLINK

1. Install **subversion**

```
sudo apt update
sudo apt install subversion
```

2. Go to your working directory and download the folder titled **codes** using the following command.

```
svn checkout https://github.com/gadepall/  
arduino/trunk/avr-gcc/setup/codes
```

3. Connect your arduino to the computer and open a terminal.
4. Open a terminal and go to the **codes** directory. Type **make**. The built in led on the arduino should be blinking.
5. If you open **main.c** in **geany**, you can execute the code by **Shift+F9**.
6. Now open **main.c**. Explain the following lines.

```
PORTB = ((0 << PB5));
    _delay_ms(500);
//turn led on
PORTB = ((1 << PB5));
    _delay_ms(500);
```

- Solution:** $((0 \ll PB5))$ writes 0 to pin 13 (PB5). $_delay_ms(500)$ introduces a delay of 500 ms.
7. Modify the above code to keep the led on.
 8. Repeat the above exercise to keep the led off.

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