AVR-Assembly Setup

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***Abstract*—This manual shows how to setup the assembly programming environment for the arduino.**

1 Components

The components required for this manual are listed in Table 1.0.

Component	Value	Quantity
Arduino	UNO	1

TABLE 1.0

2 Software Installation

1.
```
sudo apt-get install avra
   avrdude geany
```

2. Find the USB port to which arduino is connected.
```
%Finding the port

sudo dmesg | grep tty
%The output will be something
   like
[    6.153362] cdc_acm
   1-1.2:1.0: ttyACM0: USB ACM
   device
%and your port number is ttyACM0
```

3.
```
cd ~
wget https://raw.
   githubusercontent.com/gadepall
   /arduino/master/assembly/setup
   /m328Pdef/m328Pdef.inc
```

4.
```
wget https://raw.
   githubusercontent.com/gadepall
   /arduino/master/assembly/setup
   /codes/hello.asm
```

5. Open **hello.asm** in **geany**. Go to Build→Set Build Commands→Compile and type
```
avra "%f"
```

6. Then go to Build→Set Build Commands→Execute and type
```
avrdude -p atmega328p -c arduino
   -P /dev/ttyACM0 -b 115200 -U
   flash:w:%e.hex
```

7. In **hello.asm** replace **gadepall** in
```
.include "/home/gadepall/
   m328Pdef.inc"
```
with your username.

8. Connect the arduino to the computer.
9. Compile by pressing **F8**. Execute by pressing **F5**. You should see the led beside pin 13 light up.
10. Now edit **hello.asm** by modifying the line to
```
ldi r17,0b00000000
```
Save and execute. The led should turn off.

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