- **AVR** was developed in the year 1996 by Atmel Corporation. The architecture of **AVR** was developed by Alf-Egil Bogen and Vegard Wollan.

- AVR derives its name from its developers and stands for **Alf-Egil Bogen Vegard Wollan RISC microcontroller**, also known as **A**dvanced **V**irtual **R**ISC.

TYPES OF AVR

AVR's are all **8 bit microcontroller**

Classified into 4 broad groups

- Mega
- Tiny
- Special Purpose
- Classic

We cover Mega family as these microcontrollers are widely used.

Features

- 8 bit RISC single chip microcontroller

- Harvard architecture

- On chip Program ROM, Data RAM, EEPROM, Timers, I/O Ports

- Most AVRs also have ADC, PWM and different kinds of system interface.

AVR Microcontroller Program ROM

- ROM is used to store programs and hence called Program ROM

- AVR has 8M of program ROM space. The program ROM size can vary from 1K to 256K.

- One of the first microcontrollers to use on-chip Flash memory for Program storage

AVR Microcontroller Data RAM and EEPROM

- RAM space is for data storage

- Maximum of 64K bytes of data RAM space.

- Data RAM has 3 components
  - General purpose registers (GPRs)
  - I/O memory
  - Internal SRAM

- There are 32 GPRs in all the AVRs but the SRAMs size and I/O memory size vary from chip to chip.

- EEPROM is used to store critical data.

AVR Microcontroller I/O pins

- 3 to 86 pins for I/O

- The no. of pins for AVR package goes from 8 to 100.

- In 8 pin AT90S2323, 3 pins for I/O whereas for 100 pin ATmega1280, 86 pins for I/O are available.

AVR Microcontroller Peripherals

- ADC
  - 10 bit ADC
  - No. of ADC channels vary from chip to chip
- Timers
  - 6 timers besides the watchdog timer
- USARTs
  - Most of the AVR family come with I^2C and SPI buses.
  - Some also have USB or CAN bus