Introduction of Omniduino board

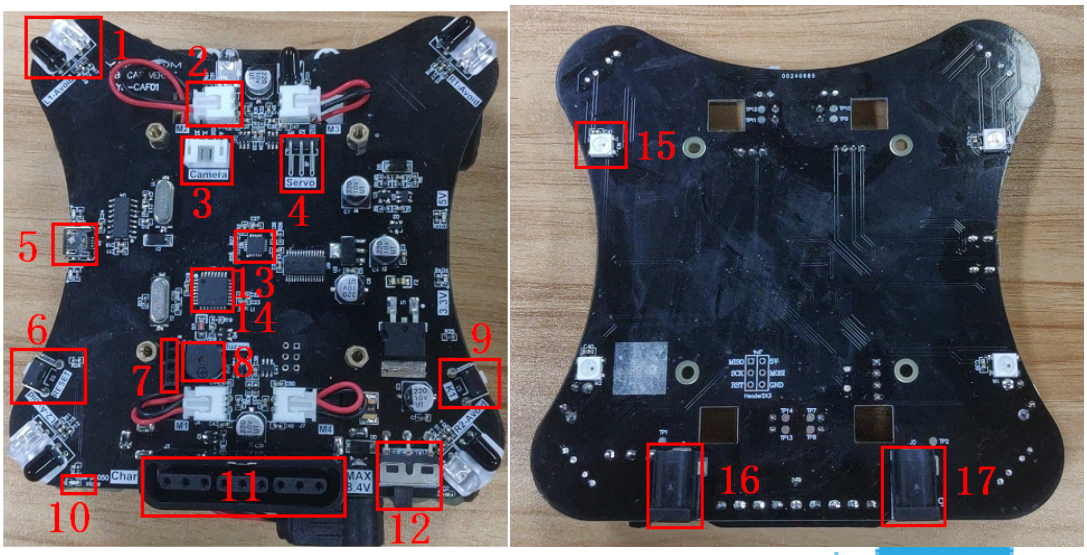
The core controller of the Omniduino robot car is the ATMEG328P-AU, a RISC-based 8-bit AVR high-performance chip that combines a 32-kb ISP flash with read-while-write capability, 1024 b EEPROM, 2 kb SRAM The chip has a total of 32 pins, of which there are 23 general-purpose registers (I/O pins).

ATMEG328P-AU supports timer/counter and compare mode (PWM output), supports setting internal and external interrupts, supports serial programming USART, supports I2C communication, supports SPI communication, and has 8-channel 10-bit A/D converter (TQFP package)), programmable watchdog timer and internal oscillator. The device operates from 1.8-5.5 volts.

Parametrics

Name	Value
Program Memory Type	Flash
Program Memory Size (KB)	32
CPU Speed (MIPS/DMIPS)	20
SRAM (bytes)	2,048
Data EEPROM/HEF (bytes)	1024
Digital Communication Peripherals	1-UART, 2-SPI, 1-I2C
Capture/Compare/PWM Peripher...	1 Input Capture, 1 CCP, 6PWM
Timers	2 x 8-bit, 1 x 16-bit
Number of Comparators	1
Temperature Range (°C)	-40 to 85
Operating Voltage Range (V)	1.8 to 5.5
Pin Count	32
Low Power	Yes

As shown below:



1. Infrared obstacle avoidance sensor: The Omniduino trolley comes with 5 pairs of infrared sensors, which are used to detect the four corners and whether there are obstacles in front and the distance from the obstacles, so that the car can avoid obstacles.
2. Motor drive interface: be used to connect the main board and motor.
3. WIFI camera interface: be used to connect the main board and WIFI camera.
4. Servo interface: be used to connect the main board and servo.
S1 is connected to the orange line of servo, VCC is connected to the red line of servo, and GND is connected to the black line of servo.
5.Micro USB interface: be used to download the program.
6. RESET button: Omniduino trolley reset button.
7. Serial port interface: be used for serial communication.
8. Passive buzzer: be used to alarm or play songs.
9. Function button: You can customize the function of the button, for example: start the car forward.
10. LED D9: LED light, can be customized function, for example: be used to indicate the MPU6050 status.
11. PS2 handle receiving base: be used to insert the PS2 handle receiver.
12. Power switch: Control the battery power switch.
13.MPU6050: The Omniduino car board carries an MPU6050 sensor in the middle, which can provide the current yaw angle data for the car.
14. Core processor: ATMEG328P
15. RGB lights on the back: Omniduino car main board possess four WS2812 programmable RGB lights at the bottom, which can give the car a different sense of RGB visual effects, such as the marquees, running lights and breathing lights.
16. Power supply interface: can be connected to 6.8~8.4V power supply.
17. Charging interface: Connect 8.4V charger (DC5.5*2.1 interface).

Indicator function:
D2: Battery indicator: If it is slightly bright or not lit, it means the battery is low. Please charge the

battery.

D3: 5V voltage indicator: L7805 normally lights up when 5V voltage is normal, otherwise it goes out.

D4: 3.3V voltage indicator: AMS1117 is always on when 3.3V is output normally, otherwise it is off.

D6: Burning program indicator light: it will be on when the program is burning, and will be off at other times.

D8: System clock and PS2 clock indicator: flashing when reset, plugged in serial line and PS2 receive data.