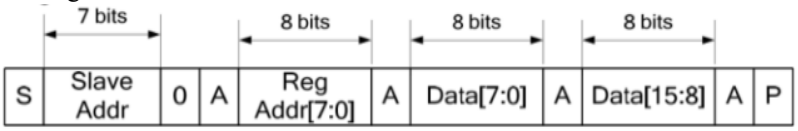
1. I2C format

1.1 Write operation

Reg addr = 8 bits and Data = 8 bits



1.2 Read operation

Reg addr = 8 bits and Data = 8 bits

2. Slave 0 (Slave address 7bits:0x20)

2.1Register description

Register	Address	R/W	Initial value
MOTOR_REG	0XE0	W	1
SPEED_REG	0XE1	W	0
COLOR_R_REG	0XE2	R	0
COLOR_G_REG	0XE3	R	0
COLOR_B_REG	0XE4	R	0
MOTOR_CAL_REG	0XEB	W	0
TRACE_REG	0XEE	W	0
AVOID_REG	0XF1	W	0
FOLLOW_REG	0XF4	W	0
TCS_STATUS	0XF9	R	0x10

MOTOR_REG: Control the direction of motor.

1	Stop	6	Right rear
2	Forward	7	Left rear
3	Back	8	Right front
4	Left	9	Front left
5	Right		

SPEED_REG: Control the speed of motor. It ranges from 0 to 100.

COLOR_R_REG: Read the value of red that color sensor detected. It ranges from 0 to 255.

COLOR_G_REG: Read the value of green that color sensor detected. It ranges from 0 to 255.

COLOR_B_REG: Read the value of blue that color sensor detected. It ranges from 0 to 255.

MOTOR_CAL_REG: Set the motor speed calibration value. It ranges from -20 to +20

TRACE_REG: Write 0 to exit tracking mode, write 1 to enter tracking mode.

AVOID_REG: Write 0 to exit automatic obstacle avoidance mode, write 1 to enter automatic obstacle avoidance mode.

FOLLOW_REG: Write 0 to exit automatic follow mode, write 1 to enter automatic follow mode.

TCS_STATUS: Read the initialization state of the color sensor. 0 indicates successful initialization.

3. Slave 1 (Slave address 7bits:0x21)

3.1Register description

Register	Address	R/W	Initial value
ULTRA_REG	0XE5	R	20
POWER_REG	0XE6	R	33
LED_R_REG	0XE7	W	0
LED_G_REG	0XE8	W	0
LED_B_REG	0XE9	W	0
SONG_REG	0XEA	W	0
NOTE_REG	0XEF	W	0
LED_SET_REG	0XF0	W	0
AVOID_REG	0XF1	W	0
IR_REG	0XF2	R	1
ULTRA_DIS_REG	0XF3	W	15
FOLLOW_REG	0XF4	W	0
IR_STATUS	0XF5	R	0
ESP32_STATUS	0XF6	W	0
TCS_LED_SWITCH	0XF7	W	0
PIANO_MODE	0XF8	W	0
TCS_STATUS	0XF9	W	0

CAMERA_STATUS	0XFA	W	0

ULTRA_REG: Read the distance that ultrasonic detected. It ranges from 0 to 255.

POWER_REG: Read the power of battery. It ranges from 0 to 33.

LED_R_REG: Write the value of red led. It ranges from 0 to 255.

LED _G_REG: Write the value of green led. It ranges from 0 to 255.

LED _B_REG: Write the value of blue led. It ranges from 0 to 255.

SONG_REG: Play onboard music.

0	BUZZER OFF	3	JINGLE BELLS
1	HAPPY BIRTHDAY	4	SONG OF JOY
2	MERRY CHRISTMAS		

NOTE_REG: Write to play note.

1	D4	5	A4	9	E3	13	B3	17	F5	21	C6	25	G3#	29	F4#	33	D5#
2	E4	6	B4	10	F3	14	C4	18	G5	22	C3#	26	A3#	30	G4#	34	F5#
3	F4	7	C5	11	G3	15	D5	19	A5	23	D3#	27	C4#	31	A4#	35	G5#
4	G4	8	D3	12	A3	16	E5	20	B5	24	F3#	28	D4#	32	C5#	36	A5#

LED_SET_REG: Write 1 to set the RGB led. It must be written 1 after writing to 0XE7、0XE8 and 0XE9.

AVOID_REG: It must be written 1 or 0 after writing 1 or 0 to the AVOID_REG of slave 0.

IR_REG: Read the IR decode.

ULTRA_DIS_REG: Write the effective alarm distance of buzzer. It ranges from 0 to 255.

FOLLOW_REG: It must be written 1 or 0 after writing 1 or 0 to the FOLLOW_REG of slave 0.

IR_STATUS: Read 1 or 0 to indicate IR decode successful or failed.

ESP32_STATUS: Write 1 or 0 to indicate the ESP32 initialize successful or fail.

TCS_LED_SWITCH: Write 1 or 0 to control the color sensor led on or off.

PIANO_MODE: Write 1 or 0 to open or close the piano mode. When enter piano mode, other functions must be closed.

TCS_STATUS: Write 1 or 0 to indicate the color sensor successful or failed initialization. It must be written after read the TCS_STATUS of slave 0.

CAMERA_STATUS: Write 1 or 0 to indicate the camera successful or failed initialization.