Bluetooth4.0 communication protocol

General protocol	state of movemnrt		rotate		whistle		accelerate and decelerate		PTZ servo		sing		light		outfire		Servo reset		Analytical position
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Data packet header	Command bit_1	Separator symbol	Command bit_2	Separator symbol	Command bit_3	Separator symbol	Command bit_4	Separator symbol	Command bit_6	Separator symbol	Data bit_8	Separator symbol	Data bit_9	Separator symbol	Data bit_10	Separator symbol	Data bit_11	Data Packet tail22	Remarks
stop	$	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
run	$	1	,	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
back	$	2	,	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
turn left	$	3	,	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
turn right	$	4	,	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
spin left	$	0	,	1	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
spin right	$	0	,	2	,	0	,	0	,	0	,	0	,	0	,	0	,	0	#	
whistle	$	0	,	0	,	1	,	0	,	0	,	0	,	0	,	0	,	0	#	
accelerate	$	0	,	0	,	0	,	1	,	0	,	0	,	0	,	0	,	0	#	
decelerate	$	0	,	0	,	0	,	2	,	0	,	0	,	0	,	0	,	0	#	
Front servo , turn left	$	0	,	0	,	0	,	0	,	1	,	0	,	0	,	0	,	0	#	
Front servo , turn right	$	0	,	0	,	0	,	0	,	2	,	0	,	0	,	0	,	0	#	
Vertical servo, turn up	$	0	,	0	,	0	,	0	,	3	,	0	,	0	,	0	,	0	#	
Vertical servo, turn down	$	0	,	0	,	0	,	0	,	4	,	0	,	0	,	0	,	0	#	**Just for Raspberry Pi**
horizontal servo, turn left	$	0	,	0	,	0	,	0	,	6	,	0	,	0	,	0	,	0	#	
horizontal servo, turn	$	0	,	0	,	0	,	0	,	7	,	0	,	0	,	0	,	0	#	
horizontal servo reset	$	0	,	0	,	0	,	0	,	8	,	0	,	0	,	0	,	0	#	
Vertical servo reset	$	0	,	0	,	0	,	0	,	5	,	0	,	0	,	0	,	0	#	
sing	$	0	,	0	,	0	,	0	,	0	,	1	,	0	,	0	,	0	#	**Temporarily not supported**
light	$	0	,	0	,	0	,	0	,	0	,	0	,	1	,	0	,	0	#	0: none, 1: white, 2, red, 3: green, 4: blue, 5: cyan, 6 magenta 7, yellow 8, extinguish
outfire	$	0	,	0	,	0	,	0	,	0	,	0	,	0	,	1	,	0	#	
Front servo, reset	$	0	,	0	,	0	,	0	,	0	,	0	,	0	,	0	,	1	#	

Read Sensor return value

	Data packet header	Command bit	Separator symbol	ultrasonic		Separator symbol	voltage		Separator symbol	Grayscale		Separator symbol	tracking		Separator symbol	infrared obstacle avoidance		Separator symbol	Light-seeking		Data Packet tail
				Command word	value		Command word	value		Command word	value		Command word	value		Command word	value		Command word	value	
Remarks	$	4WD		CSB	VALUE		PV	VALUE		GS	VALUE		LF	VALUE		HW	VALUE		GM	VALUE	#
													L1L2R1R2				L1R1			L1R1	
Eg	$4WD,CSB125,PV8.3,GS214,LF1011,HW01,GM10#																				

manipulator reading

	Data packet header	Command bit	Separator symbol	manipulatorJ1		Separator symbol	manipulatorJ2		Separator symbol	manipulatorJ3		Separator symbol	manipulatorJ4		Separator symbol	manipulatorJ5		Separator symbol	manipulatorJ6		Data Packet tail
				Command word	value		Command word	value		Command word	value		Command word	value		Command word	value		Command word	value	
	$	4WD	,	J1	VALUE	,	J2	VALUE	,	J3	VALUE	,	J4	VALUE	,	J5	VALUE	,	J6	VALUE	#
Remarks					0~180°			0~180°			0~180°			0~180°			0~180°			0~180°	

Gyro reading

	Data packet header	Command bit	Separator symbol	MPU6050		Separator symbol	MPU6050		Separator symbol	MPU6050		Separator symbol	MPU6050		Separator symbol	MPU6050		Separator symbol	MPU6050		Data Packet tail
				Command word	value		Command word	value		Command word	value		Command word	value		Command word	value		Command word	value	
	$	4WD	,	MPUgx	VALUE	,	MPUgy	VALUE	,	MPUgz	VALUE	,	MPUax	VALUE	,	MPUay	VALUE	,	MPUaz	VALUE	#
Remarks																					

manipulator reading

	Data packet header	Command bit	Separator symbol	manipulatorJ1		Separator symbol	manipulatorJ2		Separator symbol	manipulatorJ3		Separator symbol	manipulatorJ4		Separator symbol	manipulatorJ5		Separator symbol	manipulatorJ6		Data Packet tail
				Command word	value		Command word	value		Command word	value		Command word	value		Command word	value		Command word	value	
	$	4WD	,	ServoJ1	VALUE	,	J2	VALUE	,	J3	VALUE	,	J4	VALUE	,	J5	VALUE	,	J6	VALUE	#
Remarks					0~180°			0~180°			0~180°			0~180°			0~180°			0~180°	

control servo PTZ

	Data packet header	Command bit	Separator symbol	PTZ Servo		Data Packet tail
				Command word	value	
	$	4WD	,	PTZ	VALUE	#
Remarks					0~180°	

conrol colorLED

	Data packet header	Command bit	Separator symbol	R		Separator symbol	G		Separator symbol	B		Data Packet tail
				Command word	value		Command word	value		Command word	value	
	$	4WD	,	CLR	VALUE	,	CLG	VALUE	,	CLB	VALUE	#
Remarks					0~255			0~255			0~255	

Choose mode

	Data packet header	Command bit	Separator symbol	choose mode		Data Packet tail
				Command word	value	
	$	4WD	,	MODE	VALUE	#
Remarks					10_11~60_61	
Eg	$4WD,MODE31# open obstacle avoidance mode $4WD,MODE30# close obstacle avoidance mode				10：remote control mode 20：tracking mode 30：obstacle avoidance mode 40：color led 50：light-seeking mode 60:	second bit: 0--close 1--open