WHILL Control System Protocol Specification ~Appendix~

1. Appendix

1.1. Difference between Model CR and Model CR2

Below, check-mark ("✓") means IMPLEMENTED.

Table 1 : List of External Pins

External Pins	Model CR	Model CR2
RS232C (TX, RX)	✓	✓
Battery voltage output (24Vout, GND)	✓	-

Table 2 : List of UART specifications

UART specifications	Model CR	Model CR2
Baud rate	38400	38400
Parity bit	No	No
Data length	8bit	8bit
Stop bit	2bit	2bit

Table 3 : List of Control Commands

Command ID	Command	Model CR	Model CR2
0	StartSendingData	✓	✓
1	StopSendingData	✓	✓
2	SetPower	✓	✓
3	SetJoystick	✓	✓
4	SetSpeedProfile	✓	✓
5	SetBatteryVoltageOut	✓	-
6	SetBatterySaving	-	✓
8	SetVelocity	✓	✓

Table 4 : List of WHILL State Data (Data Set 0)

Information Number	Value (8bit)	Model CR	Model CR2
0	SPEED_MODE	✓	✓
1	FRONT_SPEED_MAX	✓	✓
2	FRONT_ACCEL	✓	✓
3	FRONT_DECEL	✓	✓
4	REVERSE_SPEED_MAX	✓	✓
5	REVERSE_ACCEL	✓	✓
6	REVERSE_DECEL	✓	✓
7	TURN_SPEED_MAX	✓	✓
8	TURN_ACCEL	✓	✓
9	TURN_DECEL	✓	✓

Table 5 : List of WHILL State Data (Data Set 1)

Information Number	Value (8bit)	Model CR	Model CR2
0	ACC_X (MSB 8bit)	✓	-
	LOW_BATTERY_LEVEL	-	✓
1	ACC_X (LSB 8bit)	✓	-
	ENABLE_BUZZER	-	✓
2	ACC_Y (MSB 8bit)	✓	-
3	ACC_Y (LSB 8bit)	✓	-
4	ACC_Z (MSB 8bit)	✓	-
5	ACC_Z (LSB 8bit)	✓	-
6	GYR_X (MSB 8bit)	✓	-
7	GYR_X (LSB 8bit)	✓	-
8	GYR_Y (MSB 8bit)	✓	-
9	GYR_Y (LSB 8bit)	✓	-
10	GYR_Z (MSB 8bit)	✓	-
11	GYR_Z (LSB 8bit)	✓	-
12	JOY_FRONT	✓	-
13	JOY_SIDE	✓	-
14	BATTERY_POWER	✓	✓
15	BATTERY_CURRENT (MSB 8bit)	✓	✓
16	BATTERY_CURRENT (LSB 8bit)	✓	✓
17	RIGHT_MOTOR_ANGLE (MSB 8bit)	✓	✓
18	RIGHT_MOTOR_ANGLE (LSB 8bit)	✓	✓

19	LEFT_MOTOR_ANGLE (MSB 8bit)	✓	✓
20	LEFT_MOTOR_ANGLE (LSB 8bit)	✓	✓
21	RIGHT_MOTOR_SPEED	✓	✓
22	RIGHT_MOTOR_SPEED	✓	✓
23	LEFT_MOTOR_SPEED	✓	✓
24	LEFT_MOTOR_SPEED	✓	✓
25	POWER_ON	✓	✓
26	SPEED_MODE_INDICATOR	✓	✓
27	ERROR	✓	✓
28	ANGLE_DETECT_COUNTER	✓	✓