CONTROLLER PIN MAPPING

VNH 5019 #1

IN A	D43
IN B	D47
PWM	D13
CS	A8

VNH 5019 #2

IN A	D39
IN B	D41
PWM	D12
CS	A9

VNH 5019 #3

IN A	D35
IN B	D37
PWM	D10
CS	A10

VNH 5019 #4

IN A	D31
IN B	D33
PWM	D9
CS	A11

Analog

A0	A7
A1	A6
A2	A5
A3	A4
5V	GND

Digital

D34	D20
D32	D21
D30	D24
D28	D26
5V	GND

Receiver

D36
D38
D40
D42
D48
D49
5V
GND

Test Switch

D22

ICSP

Reset	D52	D50
GND	D51	5V

LED

D29	D27	D25	D23

Servo

D44	D46	D45	D11
5V,3A	5V,3A	5V,3A	5V,3A
GND	GND	GND	GND

PWM

D2	D8
D3	D7
D4	D6
D5	-
5V	GND

Serial Comm.

5V	5V
GND	GND
D16	D14
D17	D15
-	-

X-Bee

5V
GND
D18
D19
-

Serial Comm.

Rx 0	USB
Tx 0	USB
Rx 1	D19
Tx 1	D18
Rx 2	D17
Tx 2	D16
Rx 3	D15
Tx 3	D14

SPI Comm.

MISO	D50
MOSI	D51
SCK	D52
SS	D53*

TWI Comm.

SDA	D20
SCL	D21

Interupt

INT 0	D2
INT 1	D3
INT 2	D21
INT 3	D20
INT 4	D19
INT 5	D18

Specification

Microcontroller	Arduino Mega2560 R3
Processor	ATmega 2560
Motor Driver	Pololu VNH5019 Single
Clock Speed	16 MHz
Flash Memory	256 KB
RAM/ ROM	8 KB/ 4 KB
PWM	8-Bit
Power Input	7-12VDC Rocommended
DC Jack	2.1mm Center-Positive

ARDUINO MEGA 2560 R3 PIN MAPPING

Pin Name	Device		Pin Name	Device
Digital Pin 0 (RX0)	USB		Digital Pin 36	Receiver 1
Digital Pin 1 (TX0)	USB		Digital Pin 37	VNH5019 #3 INB
Digital Pin 2 (PWM, INT0)	PWM 1		Digital Pin 38	Receiver 2
Digital Pin 3 (PWM, INT1)	PWM 3		Digital Pin 39	VNH5019 #2 INA
Digital Pin 4 (PWM)	PWM 5		Digital Pin 40	Receiver 3
Digital Pin 5 (PWM)	PWM 7		Digital Pin 41	VNH5019 #2 INB
Digital Pin 6 (PWM)	PWM 6		Digital Pin 42	Receiver 4
Digital Pin 7 (PWM)	PWM 4		Digital Pin 43	VNH5019 #1 INA
Digital Pin 8 (PWM)	PWM 2		Digital Pin 44 (PWM)	Servo #1 PWM
Digital Pin 9 (PWM)	VNH5019 #4 PWM		Digital Pin 45 (PWM)	Servo #3 PWM
Digital Pin 10 (PWM)	VNH5019 #3 PWM		Digital Pin 46 (PWM)	Servo #2 PWM
Digital Pin 11 (PWM)	Servo #4 PWM		Digital Pin 47	VNH5019 #1 INB
Digital Pin 12 (PWM)	VNH5019 #2 PWM		Digital Pin 48	Receiver 5
Digital Pin 13 (PWM, LED)	VNH5019 #1 PWM		Digital Pin 49	Receiver 6
Digital Pin 14 (TX3)	Serial 6		Digital Pin 50 (MISO)	ICSP
Digital Pin 15 (RX3)	Serial 8		Digital Pin 51 (MOSI)	ICSP
Digital Pin 16 (TX2)	Serial 5		Digital Pin 52 (SCK)	ICSP
Digital Pin 17 (RX2)	Serial 7		Digital Pin 53 (SS)	- *
Digital Pin 18 (TX1, INT5)	X Bee 3			
Digital Pin 19 (RX1, INT4)	X Bee 4		Analog Pin 0	Analog 1
Digital Pin 20 (SDA, INT3)	Digital 2		Analog Pin 1	Analog 3
Digital Pin 21 (SCL, INT2)	Digital 4		Analog Pin 2	Analog 5
Digital Pin 22	Test Switch		Analog Pin 3	Analog 7
Digital Pin 23	LED 4		Analog Pin 4	Analog 8
Digital Pin 24	Digital 6		Analog Pin 5	Analog 6
Digital Pin 25	LED 3		Analog Pin 6	Analog 4
Digital Pin 26	Digital 8		Analog Pin 7	Analog 2
Digital Pin 27	LED 2		Analog Pin 8	VNH5019 #1 CS
Digital Pin 28	Digital 7		Analog Pin 9	VNH5019 #2 CS
Digital Pin 29	LED 1		Analog Pin 10	VNH5019 #3 CS
Digital Pin 30	Digital 5		Analog Pin 11	VNH5019 #4 CS
Digital Pin 31	VNH5019 #4 INA		Analog Pin 12	- *
Digital Pin 32	Digital 3		Analog Pin 13	- *
Digital Pin 33	VNH5019 #4 INB		Analog Pin 14	- *
Digital Pin 34	Digital 1		Analog Pin 15	- *
Digital Pin 35	VNH5019 #3 INA			

* Pin is not provied on the expanded port.

POLOLU VNH5019 SINGLE OPERATION

IN A	IN B	PWM	OUT A	OUT B	Operating Mode
1	1	1	H	H	Brake to Vcc
1	0	1	H	L	Clockwise
0	1	1	L	H	Counterclockwise
0	0	1	L	L	Brake to Ground

DEFAULT CONTROLLER OPERATION

Device	Motor Driver	Receiver Channel	Operation
Motor 1	1	1	Drive Motor 1
Motor 2	2	2	Drive Motor 2
Motor 3 (Left Wheel)	3	3 and 4	Control Robot Direction
Motor 4 (Right Wheel)	4	3 and 4	Control Robot Direction
-	-	5	Unassigned
-	-	6	Unassigned