Fire Bird V P89V51RD2

Motion Control using I/O Ports

By Pawankumar Suryawanshi

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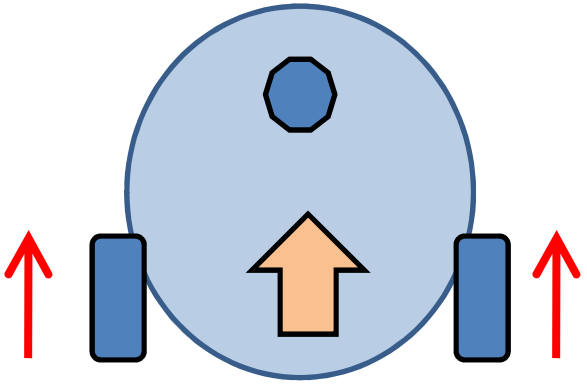
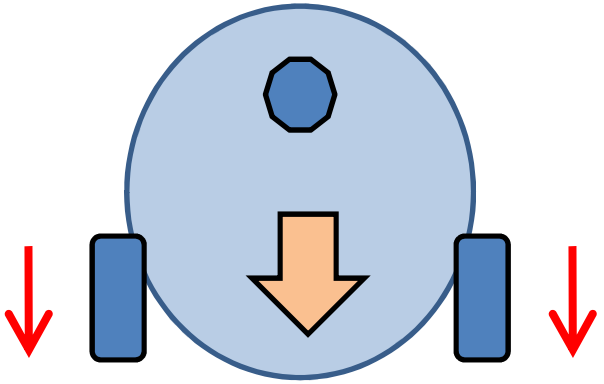
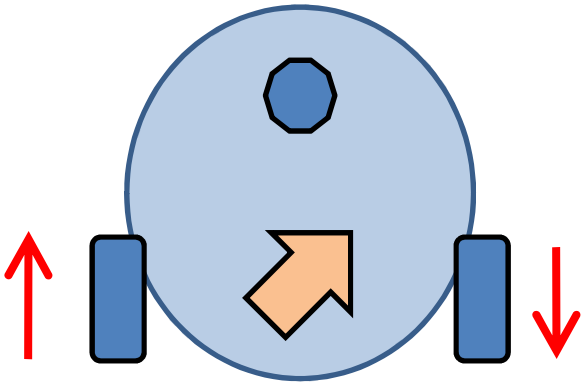
Various Motions of Fire Bird V



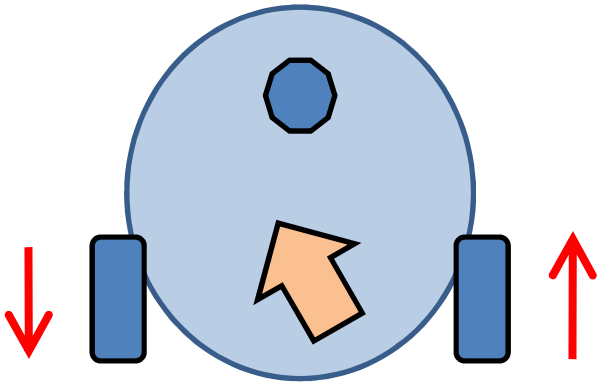
Forward



Reverse



Right Turn



Left Turn

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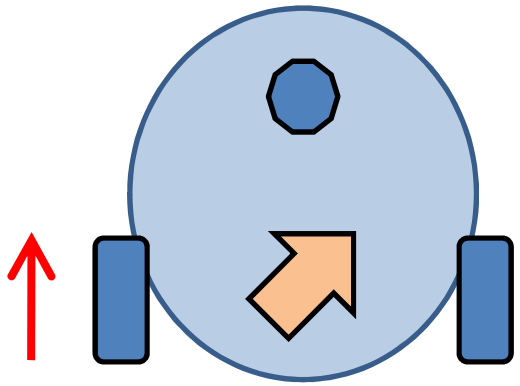
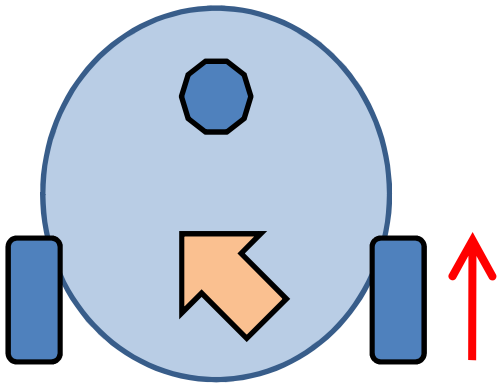
Various Motions of Fire Bird V



Soft Right



Soft Left

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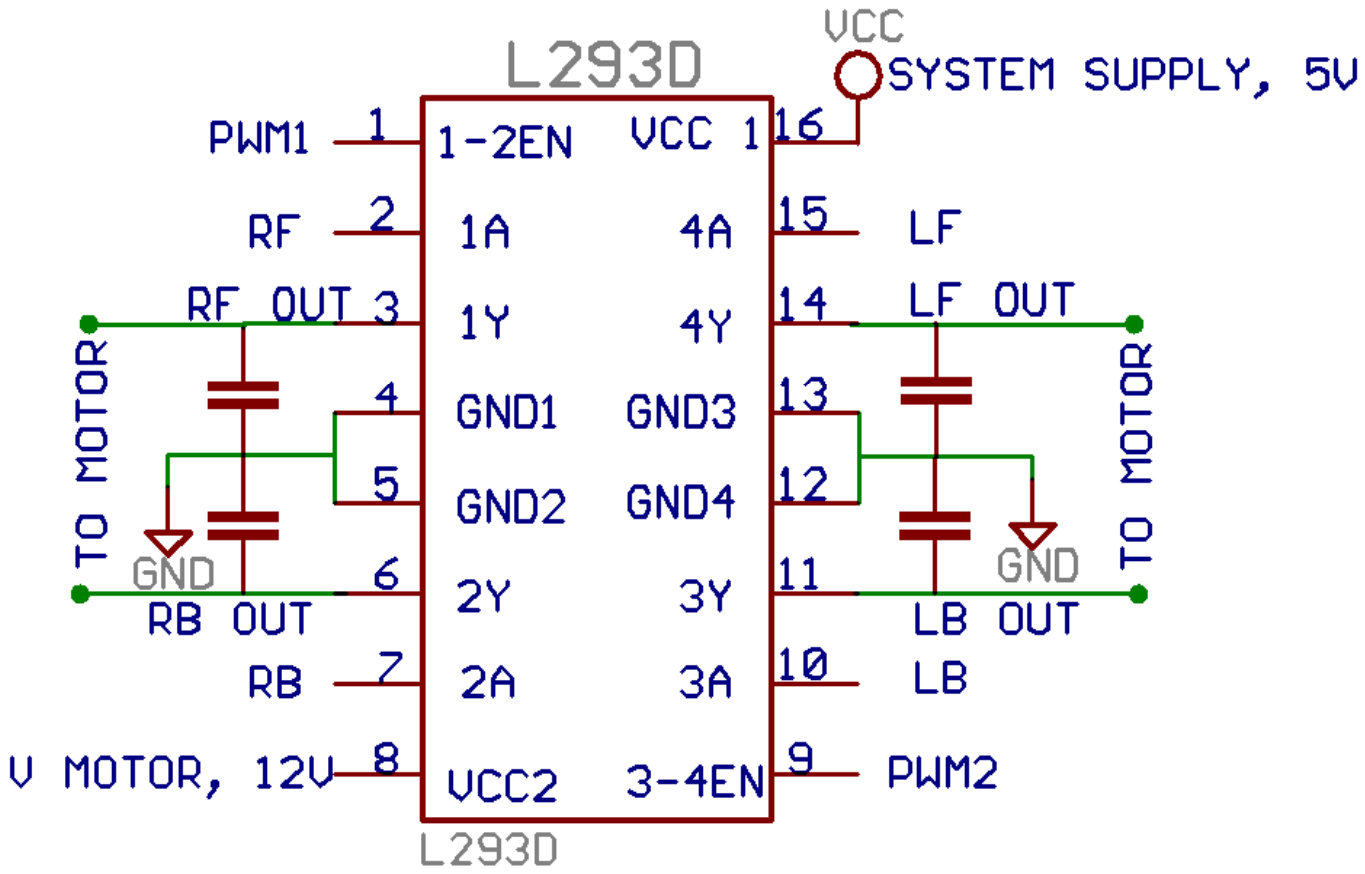
Direction Control

- Two DC motors are connected to Port1 (P1.0-P1.4)and Port3(P3.4) of the microcontroller.

- IC L293D is used as a driver between the microcontroller and the DC motors.

Block Diagram of L293D IC



Logic table for direction control of Motors:

DIRECTION	LEFT BACKWARD (LB) P1.0	LEFT FORWARD (LF) P1.1	RIGHT FORWARD (RF) P1.2	RIGHT BACKWARD (RB) P3.4	PWM
FORWARD	0	1	1	0	As per velocity requirement
REVERSE	1	0	0	1	As per velocity requirement
LEFT *(Left wheel fwd, Right wheel bckwd)*	0	1	0	1	As per velocity requirement
RIGHT *(Left wheel bckwd, Right wheel fwd)*	1	0	1	0	As per velocity requirement
SOFT LEFT *(Left wheel fwd, Right wheel stop)*	0	1	0	0	As per velocity requirement
SOFT RIGHT *(Left wheel stop, Right wheel fwd)*	0	0	1	0	As per velocity requirement
SOFT RIGHT 2 *(Left wheel stop, Right wheel bckwd)*	0	0	0	1	As per velocity requirement
SOFT LEFT 2 *(Left wheel bckwd, Right wheel stop)*	1	0	0	0	As per velocity requirement
HARD STOP	0	0	0	0	As per velocity requirement
SOFT STOP (Free running stop)	X	X	X	X	0