

TABLE OF CONTENTS

1	SCOPE	6
2	INTRODUCTION	6
2.1	Exactly What is ICC11?	7
3	TJ PRO™ EXPERIMENTAL SETUP	7
3.1	About Batteries and Bench Testing Programs	8
3.2	Eliminate Jerky Motion	8
3.3	Installing Program Directories.....	9
3.4	TJ PRO™ Library and Include Files.....	9
3.5	Serial Communication with the TJ PRO™	12
3.6	Compiling with ICC11	13
3.7	Downloading Files	13
3.8	Execute a Program	14
3.9	Robot Time Variables.....	15
4	TOUR DE ROBOT WITH ICC11	15
4.1	Motor Control	15
4.1.1	Interactive control of the TJ PRO™ Motors.....	16
4.1.2	Introducing Waits	17
4.1.3	START	18
4.2	Bumper Sensor.....	19
4.2.1	Bumper Values.....	21
4.3	Infrared Proximity Sensors	21
5	SOME POSSIBLE BEHAVIORS.....	24
6	PROGRAMMING BEHAVIOURS	24
7	ADVICE ON DEVELOPING BEHAVIORS.....	24
7.1	Vulcan Mind Meld.....	24
7.2	Relative calibration of sensors of the same type	25
7.3	Adjusting to Ambient Conditions	25
7.4	Create simple behaviors.....	26
7.5	Build on simple behaviors	26
7.6	Integrating Behaviors	26
8	RECOMMENDED STRUCTURE FOR YOUR C CODE.....	26
8.1	Initializations	27
9	TJ PRO™ EXPERIMENTS	29
9.1	Robot Connections During Program Development.....	30
9.2	Motor Experiments.....	30
9.2.1	Calibration of the Motors Zero-PWM	30
9.2.2	Motor Angular Speed Characteristics	31
9.2.3	Robot Translation.....	33
9.2.4	Robot Spin	35
9.3	Bumper Experiments.....	36
9.4	Infrared Experiments.....	38
10	APPLICATIONS	40
10.1	Programming a Behavior from a Specification	40
10.2	Application Program Descriptions	42
11	BEHAVIOR INTEGRATION	50
12	FURTHER EXPLORATION.....	52