Level 1 Rubric

	0-1 pt	2-3 pts	4-5 pts	Mark (Max 20 pts)
State Machine	Robot cannot perform the basic state machine.	Robot can perform basic state machine, stopping, waiting, and rotating. Robot can wait as time specified.	Robot can perform basic state machine, stopping, waiting, and rotating. Robot can wait as time specified. Robot can pass through a junction.	
	0-1 pt	2-3 pts	4-5 pts	
Motion and control	Robot has no control to centre of track. Robot does not control speed as it enters station.	Robot has little control to centre of track, or slow to correct its position. Robot does not control speed as it enters station.	Robot can move and control to centre of track as it moves along the track. Robot control speed as it enters stations.	
	0-1 pt	2-3 pts	4-5 pts	
Completion	Unable to complete any delivery. Did not write status to output file and did not upload data to cloud.	Able to complete **some** delivery within a specified time. Students redo or restart. Either write status to output file or upload data to cloud.	Able to complete all delivery and return home within a specified time on the first try. Write status to output file and upload data to cloud.	
	0-1 pt	2-3 pts	4-5 pts	
Simulation	Unable to complete any path or motion in SOAR.	Able to complete **some** path or motion in SOAR.	Able to complete all path and motion in SOAR.	

Level 2 Rubric

	0-1 pt	2-3 pts	4-5 pts	Mark (Max 25 pts)
State Machine	Robot cannot perform the basic state machine.	Robot can perform basic state machine, stopping, waiting, and rotating. Robot can wait as time specified.	Robot can perform basic state machine, stopping, waiting, and rotating. Robot can wait as time specified. Robot can pass through a junction.	
	0-1 pt	**2-3 pts**	**4-5 pts**	
Motion and control	Robot has no control to centre of track. Robot does not control speed as it enters station.	Robot has little control to centre of track, or slow to correct its position. Robot does not control speed as it enters station.	Robot can move and control to centre of tracks it moves along the track. Robot control speed as it enters stations.	
	0-1 pt	**2-3 pts**	**4-5 pts**	
Completion	Unable to complete any delivery or only a few delivery.	Able to complete **some** delivery within the specified time. Students redo or restart.	Able to complete all delivery and return home within the specified time on the first try.	
	0-1 pt	**2-3 pts**	**4-5 pts**	
Path Planning	Robot unable to follow path sequence.	Path is hard coded in the code or path planning does not always give the optimized solution.	Student code is able to plan path with optimized solution.	
	0-1 pt	**2-3 pts**	**4-5 pts**	
Simulation	Unable to complete any path or motion in SOAR.	Able to complete **some** path or motion in SOAR.	Able to complete all path and motion in SOAR.	

Level 3 (Competition) Rubric

	0-1 pt	2-3 pts	4-5 pts	Mark (Max 30 pts)
State Machine	Robot cannot perform the basic state machine.	Robot can perform basic state machine, stopping, waiting, and rotating. Robot can wait as time specified.	Robot can perform basic state machine, stopping, waiting, and rotating. Robot can wait as time specified. Robot can pass through a junction.	
	0-1 pt	2-3 pts	4-5 pts	
Motion and control	Robot has no control to centre of track. Robot does not control speed as it enters station.	Robot has little control to centre of track, or slow to correct its position. Robot does not control speed as it enters station.	Robot can move and control to centre of tracks it moves along the track. Robot control speed as it enters stations.	
	0-1 pt	2-3 pts	4-5 pts	
Completion	Unable to complete any delivery or only a few delivery.	Able to complete **some** delivery within the specified time. Students redo or restart.	Able to complete all delivery and return home within the specified time on the first try.	
	0-1 pt	2-3 pts	4-5 pts	
Path Planning	Robot unable to follow path sequence.	Path is hard coded in the code or path planning does not always give the optimized solution.	Student code is able to plan path with optimized solution.	
	0-1 pt	2-3 pts	4-5 pts	
Simulation	Unable to complete any path or motion in SOAR.	Able to complete **some** path or motion in SOAR.	Able to complete all path and motion in SOAR.	
	0-1 pt	2-3 pts	4-5 pts	
Obstacle avoidance	Robot is unable to avoid obstacles.	Robot is able to avoid **some** obstacle and return to centre of track.	Robot is able to avoid **all** obstacle and return to centre of track.	