











STAGE	13			1	3	100
3	14			2	3	100
	15	3		3	3	100
	16			4	2	66
	17			5	3	100
	18			6	2	66
					Efficiency average	88.667
STAGE	19			1	4	100
4	20			2	4	100
	21	4		3	4	100
	22			4	4	100
	23			5	3	75
	24			6	4	100
					Efficiency average	95.833
STAGE	25				4	100
5	26				4	100
	27	4	0		4	100
	28				4	100
	29				4	100
	30				4	100
					Efficiency Average	100
					Total	96.9%
					Efficiency average	

#### IV. CONCLUSIONS

The essential requirements for the structural of robot design have been established based on the device configurations and the ball collection capacity that the robot can contain according to the work area. The evaluation of the artificial vision system is for the calculating of the real coordinates. It shows the accuracy of 99.088% and 98.264% in the X and Y axes, respectively. The robot's efficiency was determined with an average value of 96.9%, which was obtained through tests in different scenarios, depending on the number of balls to collect and the number of distractors.

It was possible to make a collecting robot with high precision and efficiency when collecting tennis balls by applying various techniques that involve the wide field of electronics and artificial vision through digital image

processing. According to the tests carried out, it is considered that the locomotion system could be improved to reduce the time spent on the task of collecting balls. Based on the above, it was proposed that a new version of the prototype should have a control system implemented to reduce execution time.

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