5. Conclusion and Recommendations

5.1 Conclusions

This Research provide the optimum solution for the automated painting Hanger by merging both the tradition painting process with the industrial Automation tool (PLC) and developing the conceptual design of the automated painting workshop hanger. From this we conclude that this system will provide the following:

1. Reduce the risk for the painting labors.
2. A cost effective model in dealing with the spillage of paint or waste management that captured by controlling the painting gun operation by a control signal from the object detector.
3. Ensure the quality of painting by keep the pre-described distance (8-10) inches during the painting process by using the proximity sensor to control the Holding Arm forward or backward to aircraft body.
4. Power saving by enabling the vacuum fans operates only when the system is energized.
5. Decrease the aircraft downtime, can easily operate the system any time.

5.2 Project Constrains

This project achieves its objects of providing a optimum solution for painting process by applying PLC as automation tool, better than what is already happening, but the results will be better if the following things happening:

1. Due to the rush of air craft painting in SAFAT there are no way to implement the design on the ground.
2. The information and knowledge in aviation sector are very scares and top secrets especially in the technical side.
3. This project is a joint between two different organizations, son some bureaucracy appear in the approvals and permissions.
4. The specification and selection of the devices and equipments is not included in this research only the conceptual design.
5.3 Recommendations

At the end of this research, this recommendation suggested to improve the project:

1. Complete the system to be fully automated using computer program.
2. Improve the system by using ROBOTIC Technology.
3. Using more powerful sensors to enhance the efficiency and effectiveness of the system.
4. Applying the Digital Image processing DIP techniques to identify the shape of the asymmetrical parts of the aircraft, only insert the aircraft type and then reload the painting program code with the dimensions and scales.
5. Supply the system with PID controller to ensure correctly the control distance between the spray gun and the aircraft surface.