



## Cover page

Project title: Solar Panels Cleaner Robot

Academic Year: Summer of 2023

Group Members: Mohamad Jondi

Department Name: Computer Engineering

Ahmad Amira

**Project Type: Hardware**

Supervisor Name: Dr .Amjad AbuHassan

### Format:

- Single space, Times New Roman.
- 12 pt,
- Maximum 1 page.

### Abstract Body:

#### Items must be provided in the Abstract:

- Why do you think this project is important? Please explain the significance of this Project in brief.
- In your point of view what are the important aspects that should be covered in the project?
- Objective(s): In your view, please explain the main objectives of the project.
- Methodology: Give a brief outline of the application development process.
- Had this project been done before? Are there any similar applications available today?
- **Note:** Please deliver this abstract early to ensure that your Project has been approved by the department's projects committee. **Registration will not be done without this approval.**



## Project's Abstract:

Solar panels are a popular and environmentally friendly method of generating electricity. However, over time, solar panels can get dirty and dusty, which reduces their efficiency. Regular cleaning is essential to ensure optimal performance. However, the problems with traditional cleaning methods are mainly the high cost of manual labor and the potential for human error. Moreover, there are risks that come with cleaning solar panels in high places.

This project aims to develop a solar panel cleaner robot. By automating the cleaning process, the robot offers a cost-effective solution that can improve energy generation and extend the lifetime of solar panels. The project aims to cover important aspects such as autonomous navigation, effective cleaning mechanisms, and safety measures to prevent harm to the solar cells.

To achieve these objectives, the robot will incorporate a range of sensors and utilize hardware components. For autonomous navigation, edge detection sensors like ultrasonic or infrared sensors will enable the robot to detect and remain within the frame of the cell. To ensure mobility, a robust system consisting of wheels or tracks will be employed to navigate the solar panel array. Additionally, elastic materials for the wheels will be used to provide stability and prevent slipping such as different kinds of rubber, especially considering the different angles of the cells. The robot will also include a sensor for monitoring the water level in the tank, providing alerts when it is empty. Furthermore, the addition of a solar panel to the robot itself is being considered.

While similar projects have been done before, this project aims to enhance the existing designs by adding more features and improving stability. The intention is to create a solar panel cleaner robot that is more efficient, and reliable.