**SOLAR POWERED LAWN MOWER CONVERSION REPORT**

**Project Overview:**

This report gives the overview of the plan to convert a fuel-powered lawn mower into a solar-powered electric mower following your request.

**Advantages of this project:**

* **Reduced Environmental Impact:** Solar energy is a renewable energy resource, which means it will eliminate air pollution.
* **Lower Operating Costs:**  Since no fuel purchases are required and the sun is a free gift of nature, this project will help cut down costs.
* **Quieter Operation:** Electric motors are significantly quieter than fuel engines, also helping to reduce noise pollution.
* **Reduced Maintenance:** Electric motors require less maintenance compared to fuel engines.

**Challenges that may be faced and proposed Solutions:**

* **Limited Power Output:** Solar panels generate less power than gasoline engines.
  + **Solution:** We will address this by:
    - Choosing a lightweight electric lawn mower with a lower wattage engine (around 150 watts).
    - Using a battery with a larger capacity to store solar energy and extend mowing time.

**Conversion Plan:**

1. **Mower Selection:** Following your already available mowers, we will get our materials to fit into that (Price to be determined based on chosen model).
2. **Solar Panel and Battery:**
   * Solar Panel: we will also purchase a solar panel with a wattage rating exceeding the chosen mower's engine wattage. (Price to be determined based on wattage).
   * Battery: Due to the high energy density, capacity, and fast charging capabilities, we will also implement a Lithium-ion battery. (Price to be determined based on capacity).
3. **Conversion Process:**
   * We will disassemble the fuel engine from the required Lawn Mower Conversion Report
   * We will install the electric motor from the required electric mower in place of the fuel engine.
   * We will connect the solar panel to the battery and the battery to the electric motor, a charge controller will be necessary to regulate voltage.
   * Backup Power System (Optional):
   * Include a secondary Lithium-ion battery for backup power on cloudy days. (Price to be determined based on capacity).

**Essential materials needed**

* + 1. A fuel powered lawn mower
    2. Solar panel
    3. An electric motor
    4. Lithium-ion battery
    5. Second Lithium-ion battery(Optional)
    6. Charge controller
    7. Mounting hardware
    8. Electrical wirings and connectors