Name:

Mr.Cleaner-The Dusty.(Solar Panel Cleaner)

develop by Rutherford Group from Core2Web Technologies

Description:

“The Dusty” is a Simple Solar Panel Cleaner. It is effective way to clean the solar panel.

Why should I make it?

Sun emits large amount of energy. This Energy is convert into

electricity by solar panel.But the main problem with solar panel is that dust and dirt mostly accumulate over the panel.

This reduce the efficiency of the panel. Hence it is necessary to clean the panel. But this job consume more manpower and time. Mr. Cleaner-The Dusty helps to clean panel more efficiently and reduce the man power required for this job.Mr.Cleaner-The Dusty Is economical and required very less maintenance.

Components:

1.28-BYJ48 Stepper motor: Rated voltage ： 5VDC

Number of Phase :4

Speed Variation Ratio: 1/64

Stride Angle: 5.625° /64

Frequency: 100Hz

DC resistance: 50Ω±7%(25℃)

2.NodeMCU-ESP8266: Operating Voltage: 3.3V

Input Voltage: 7-12V

Digital I/O Pins (DIO): 28

Analog Input Pins (ADC): 8

Analog Outputs Pins: 2

UARTs: 3

SPIs: 2

I2Cs: 3

Flash memory:4MB

3.L shape DC motor: Operating voltage:4.5-18 V

Startup torque :3.6 KG•CM

Startup torque:3.1 Inch•lbf

Gear ratio: 30:1

No-Load Current(12V): 0.053 A

Stall Current: 1.5 A

No-Load Speed (12V): 200RPM

4.L 293D Motor Driver: Voltage Range: 4.5-36 V

Separate Input-Logic Supply

Internal ESD Protection

Thermal Shutdown

High-Noise-Immunity Inputs

O/P Current 600 mA Per Channel

Peak O/P Current 1.2 A Per Channel

Working:

There are two modes: 1.Automatic

2.Manual.

[Note: sendToCloud.py this file contains working code. dist/sendToCloud.exe file is executable file please try this. ]

1) Automatic Mode:

In automatic mode, first set a time of cleaning.This time is set

to cloud by user and then copy to Node MCU. Node MCU has

continuously running code to check the current time with set time.

When current time becomes equal to set time motors start working and complete the cleaning action to-and-fro and return back to its original position. After cleaning it return complete status to user and user gets an notification on screen.

**ex:** user set time morning 6:00 am. Our Mr.Dusty daily start cleaning at morning 6:00am ,After done cleaning it notify to user 'solar panel cleaning is done'.

[note: in Automatic mode give input time in 24 hours ex: 23:44 ]

2) Manual Mode:

In manual mode, After selecting the manual mode ON status is sent to the cloud by the user and this is receive by Node MCU.After checking this device start working and perform its task and after completing action a complete status return to user.User get a notification on screen.

**ex:** If user want clean solar panel at any time ,He will be clean solar panel with manual mode. After done cleaning it notify to user 'solar panel cleaning is done'.

[note: in Manual mode give input as 1 or 0 .if 1 is input its start ,otherwise nothing work. ]

Uses: This device is useful for the cleaning of the large Solar panel array at a time with less efforts. The solar power plant have thousands of solar panel and it require huge man power to clean panel.This cleaning action by using man power is hectic and time consuming.So this device will help to save that huge amount of man power.

**Program Files:**

1. program1 : this file for machine working or nodeMCU uploading

2. sendToCloud : this file for user working or interface with machine