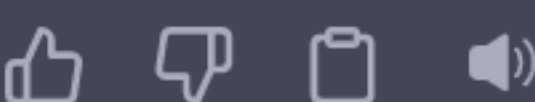




Write a PLC program in ST according to IEC 61131-3, to create an automatic car wash station with only one station. Station detect if car is there by a sensor and if no human is present (In car wash area) then it start to wash to car. If there is any human detected in the car wash area then car wash station should stop and send an alarm.



Here's a sample PLC program in Structured Text (ST) according to IEC 61131-3, to create an automatic car wash station with only one station:



cssCopy code

```
PROGRAM Automatic_Car_Wash
VAR
    CarPresent : BOOL;      (* Sensor input for car presence *)
    HumanPresent : BOOL;    (* Sensor input for human presence *)
    WashActive : BOOL;      (* Output for wash activation *)
    Alarm : BOOL;           (* Output for alarm activation *)
END_VAR

(* Main program *)
IF (CarPresent AND NOT HumanPresent) THEN
    WashActive := TRUE;     (* Start the wash *)
    Alarm := FALSE;         (* Reset alarm *)
ELSEIF (CarPresent AND HumanPresent) THEN
    WashActive := FALSE;    (* Stop the wash *)
    Alarm := TRUE;          (* Activate alarm *)
ELSE
    WashActive := FALSE;    (* Stop the wash *)
    Alarm := FALSE;         (* Reset alarm *)
END_IF
```

The program starts by declaring the necessary variables for the car presence sensor, human presence sensor, wash activation output, and alarm output.

The main program uses an IF-ELSEIF-ELSE structure to check the status of the sensor inputs. If the car is present and there is no human detected in the car wash area, the wash is activated by setting the WashActive output to TRUE and the Alarm output to FALSE. If both the car and a human are detected, the wash is stopped by setting WashActive output to FALSE and an alarm is activated by setting the Alarm output to TRUE. Finally, if neither the car nor human is detected, both WashActive and Alarm outputs are reset to FALSE.

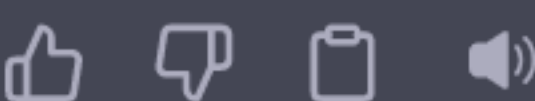
This program ensures that the automatic car wash station with only one station detects if the car is there by a sensor and if no human is present in the car wash area, then it starts to wash the car. However, if there is any human detected in the car wash area, the car wash station will stop and send an alarm.



There is no 'ELSEIF' keyword in IEC 61131-3.



You are correct, the "ELSEIF" keyword is not part of the IEC 61131-3 standard. I apologize for the error in my previous response. Here is an updated program using the "ELSIF" keyword instead:



cssCopy code

```
PROGRAM Automatic_Car_Wash
VAR
    CarPresent : BOOL;      (* Sensor input for car presence *)
    HumanPresent : BOOL;    (* Sensor input for human presence *)
    WashActive : BOOL;      (* Output for wash activation *)
    Alarm : BOOL;           (* Output for alarm activation *)
END_VAR

(* Main program *)
IF (CarPresent AND NOT HumanPresent) THEN
    WashActive := TRUE;     (* Start the wash *)
    Alarm := FALSE;         (* Reset alarm *)
ELSIF (CarPresent AND HumanPresent) THEN
    WashActive := FALSE;    (* Stop the wash *)
    Alarm := TRUE;          (* Activate alarm *)
ELSE
    WashActive := FALSE;    (* Stop the wash *)
    Alarm := FALSE;         (* Reset alarm *)
END_IF
```

In this updated program, the "ELSIF" keyword is used instead of "ELSEIF". This conforms to the IEC 61131-3 standard, which does not include the "ELSEIF" keyword.