Tutorial 3

**Step 1:**

Required to design a logical circuit for an alarm that will be triggered when a driver and or a passenger are seated in car not wearing a seatbelt after ignition.

**Step 2:**

|  |  |  |
| --- | --- | --- |
| Name | Type | Logic |
| Passenger Seat Sensor | Boolean/Discreet | Active(Seated)= 1 |
| Driver Seat Sensor | Boolean/Discreet | Active(Seated) = 1 |
| Ignition | Boolean/Discreet | Active(Ignited)= 1 |
| BELTP | Boolean/Discreet | ActiveLow (Not Fastened)= 0  ActiveHigh(Fastened)= 1 |
| BELTD | Boolean/Discreet | ActiveLow (Not Fastened)= 0  ActiveHigh(Fastened)= 1 |
| Alarm | Boolean/Discreet | ActiveLow(0=Alarm On, 1=Alarm Off) |

**Step 3**

**3.1**

If Ignition is = 1 and Driver Seat Sensor= 1 and or Passenger Seat Sensor = 1 and the BELTP or BELTD is not = 1 then sound Alarm = 1.

Otherwise Alarm=0

**3.2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IGN | Driver | Passenger | BELTP | BELTD | Alarm |
| 0 | 1 | 1 | 1 | 1 | 0 |
| 0 | 1 | 0 | 0 | 1 | 0 |
| 0 |  |  |  |  |  |