Mechanical Design 2

light system

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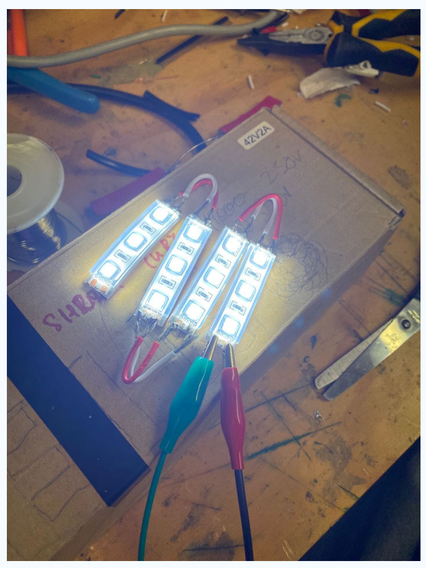
Problem Statement and Customer Needs

As a motor vehicle, lighting system is an essential link. Lighting system can not only illuminate the road ahead and the interior environment, but also ensure the safety of drivers and vehicles. So cars need brake lights, turn signals, and back lights in addition to the lights. Our job is to design and build and install these lighting systems in the car.

Solving problems

First we need to determine the type of bulb. We selected the LED light as the bulb of the car body. The reasons are as follows: first, the brightness of the LED bulb is high enough to be used as a car light; second, the energy consumption of the LED bulb is low, and it only needs 12 volts to drive it. The selection of the light bulb is over, the next question is where to place the light bulb on the car body. The design of our car lights should not be very obtrusive to break the streamlined design of the car body. In addition, our car lights should not conflict with the position of other items. In the end, we chose to use a 3D printed lampshade to make the front light, and a transparent plastic shell to cover the rear light. The third problem is how to connect these lights to the circuit reasonably. Since we are not students majoring in electrical engineering, we have encountered huge difficulties in this regard. Moreover, the location of the battery was determined late, which delayed the choice of our connection circuit for a long time. In the end, we spent a lot of energy and completed this task with the help of William and Patrick.





What can be improved

I think our circuit design can be more perfect. Because our major is not electrical, I believe that if professional electrical students design the circuit, the circuit and lighting system of this car will be more perfect.

Conclusion

Due to our initial unfamiliarity with the circuit and the excessive time spent on the choice of the bulb, we were very late in making the final product. In addition, welding LED and wire is also difficult for us. It is not difficult to weld them together, but it is not easy to make sure that they work after connecting the circuits. In addition, there were many unreasonable aspects in our circuit connection, and we also took a lot of detours in this aspect. Finally, with the help of teachers and classmates, we finished the project even though we were not good enough.

THANKS

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