The Design of Plate Fan Based on Photo Sensor

Xu, Diming

The plate fan is a new kind of electric fan which does not need a traditional motor. The fan is driven by the repellent force between the same magnetic poles. Some Nd-Fe-B Magnets are placed on the flabellum's margin and some solenoids are placed on the outer frame, both in circular array. The solenoids and controlled by photo sensors. On the flabellum's margin, there are also black and white colour strips separated according to the position of magnets. When the photo sensor detects the white strip, it turns the related solenoids on and pushes the fan to rotate. When the photo sensor detects the black, it shut down the related solenoids. In generally speaking, the plate fan system is actually a magnified DC motor. But in this way, the force arm of the motor is extend and less force is required to drive on the same fan. Comparing to the traditional fan with AC motor, plate fan needs less power to work.

Awards Won: