

A cover for the single-person pedal-powered vehicle

Introduction

Bikes are commonly spotted in the world, being regarded not only as a way to exercise, but also a environmental-friendly way to commute. Therefore, more and more people begin to ride bicycles. However, cyclists may come across a few inconvenient circumstances due to the lack of a cover. For example, when the weather is bad -- maybe it's pouring or snowy, its quick uncomfortable for the rider. Moreover, a cover could protect the cyclist from injury and pollution.

It seems easy that we could simply add a umbrella to the bicycle or wrap the bike with iron and glass. Similar researches have been conducted by Alice[1] a few years ago. However, Bob's study[2] points out that creating an iron body for the bicycle is unsafe, because the balance is much harder to keep so that the possibility of falling down increases dramatically. Carol carried out a project in 2019 pointing out the fact that a umbrella cannot effectively shield the rain for the rider[3]. Dave's group used a synthesized material and applied it to creating the bicycle shell[4], and experiments conducted by Eve[5] showed that the new bicycle with the shell is much easier to keep balance, but the wind resistance is strong.

In this paper, we apply a new technique to create a cover with an aerodynamic shape, which can significantly decrease the wind resistance. In addition, we use a new polymer material to build the cover, which is extremely light and hard, tested by Francis[6]. In our experiments, the results is promising, indicating that our bike with the shell is both protective and costumer-friendly.