Bus Handgrip Revolution

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Problem description

While taking Trolly, it always bothers me if I cannot have a seat. Standing for several minutes is not that suffering for me but I know for sure that I will potentially fall down with those bad designed bus handgrips.

It is true, and I cannot remember how many times I nearly fell down but thanks to other helpful people or pillars I did not. The bus handgrips hardly help me to stand steadily.

Firstly, since they are made of leather or some soft plastic, they are not stable but flexible enough to be bent to any direction. Playing with it by using strength on it and pull it to different directions, then you will find without any difficulty that using these soft materials are never a good design choice for a handrail. As a result, the user cannot simply grasp it as a support to keep himself standing in a sudden turning bus. It will definitely cause risks even injuries.

Secondly, it is hanging down from the ceiling, maybe several inches over my head. It is too high for short people and some of children. A large mount of users cannot even use it. This is not only an accessibility issue, but also equitability one: because it is not usable for some people, it will create some feelings of inequity.

Thirdly, It is not flexible in use. It can only be used with hands, which means that you can never use it with both of your hands occupied with stuffs. Those simple leather belts are not designed delicately for multiple using methods.
Proposed solution

To deal with the problems I have mentioned above, specially designed handrail may be a good way to go.

As you can see in the picture, there are some handrails hanging down from the top instead of handgrips. They are made of hard rubber so they are steady enough to support the people grabbing them. It means that people will not fall down easily any more. Additionally, the handrails will not swing in the air and hit someone on the head. More reliable and safer.

Stretchable handrail

Also, the stick part is stretchable. When the user presses the button on the side pillar, the stick will stretch (as the picture below). And when the user is about to get off the bus, pressing the button on the end of handle, the stick will retract (as the picture below). So all the users, regardless of the height, will be able to use it. And it will not bother other passengers when it is retracted.

Stretch and retract

Last but not least, the direction of handle can be adjusted by twisting it. So the user can use other parts of their body (wrists, arms, shoulders. etc.) to hold it. It is much more flexible in use.