Hi. I’m Lee Yujin and I major in computer science. Today I’m going to talk about Hoverboard: a flying skateboard. Nowadays, there are various kinds of one-man ride on the road. Especially we can see many electric rides like electric scooters, skateboards, and electric bicycles on the road and there are many well-made systems to rent them. For now, these vehicles have wheels, so they move in contact with the ground. But what I’m going to talk today is about a skateboard that moves above the ground.

The reason why this hoverboard can float is that it used a ‘superconductor’. A superconductor is a substance that loses all electrical resistance when it is below a certain temperature. When a single current is produced to the superconductor, we can use energy almost infinitely because there is no resistance. To make a specific temperature for the superconductor, we use liquid nitrogen. The liquid nitrogen has a very low temperature of minus 197 degrees. Using this, we create a superconductor and combine it with the coil to make the form of a ‘permanent magnet’ and put it in the hoverboard.

In this model, we can only ride it at its own area that rail are underneath the ground. The way to ride this hoverboard is same as a normal skateboard. Use your foot to make a thrust and enjoy, but we need time to adapt because there is no friction and resistance. The liquid nitrogen vaporizes and leaves a trace like smoke.

The design of the hoverboard should be easy for people to ride. The length of the width should be at least shoulder-width to ride comfortably. The inside should be empty so that there is room for coils and superconductors, but also it should not be too deep because it can interfere floating.

The hoverboard holds a weight of the riding person and the weight of itself. So, it is important to select a material that is light and strong. It also has to be tough and dense because we often fall or bump while riding a board and it should not be broken from the impact.

Let think of a situation that the board encounters an obstacle. We can add a function that can stop or sidestep the obstacle by using light or sound. We can attach a device that can send and receive laser light or ultrasonic waves. The light or ultrasonic waves will be emitted in its own frequency and when they meet the obstacle, it will reflect, and the receiver can accept them, so we know whether the obstacle is there or not.

In the future with further advanced technology, we will be able to develop more stable and practical hoverboards. Thank you for listening my presentation.