**Introduction**

**Mobile Robot & Navigation:**

Have you ever seen service robots in a restaurant? Or let a cleaning robot clean your room? In fact, these kinds of robot have been changing our world more than yours think. Many new types of mobile robots have been developed to work in places like hospitals, factories, or other public areas. To work safely and efficiently for such robots, they have to evade many obstacles like chairs, tables, or even people, so a powerful navigation system is important.

**Navigation system:**

Just like the google map, conventional navigation systems of robots can generate a clear path from point A to point B, telling the robots how to avoid static obstacles and reach their destinations. Dozens of strategies have come out to deal with this issue, and many of them have found big success in dealing complicated environments even like a maze. However, if there are people, cars, or other moving obstacles in robots’ working environment, none of a fix path could be guaranteed safe. Therefore, a different type of navigation system should be applied to overcome this situation.

**Method**

**An obstacle-avoidance algorithm for dynamic environment:**

So, my research focuses on developing an obstacle-avoidance algorithm for robots in dynamic environment. This system is different from other navigation tool. Instead of generate a clear route, our algorithm generates a motion command for robots in each time period. In other words, in every second, our method is going to tell robots how fast I should move forward and which direction I should turn. By keeping repeating the following three steps, this system can help the robot develop a kind of “special awareness”.

Those three steps are: observation, prediction, and making decisions. Let me explain more detail in the following slid.

**Observation:**

In general,