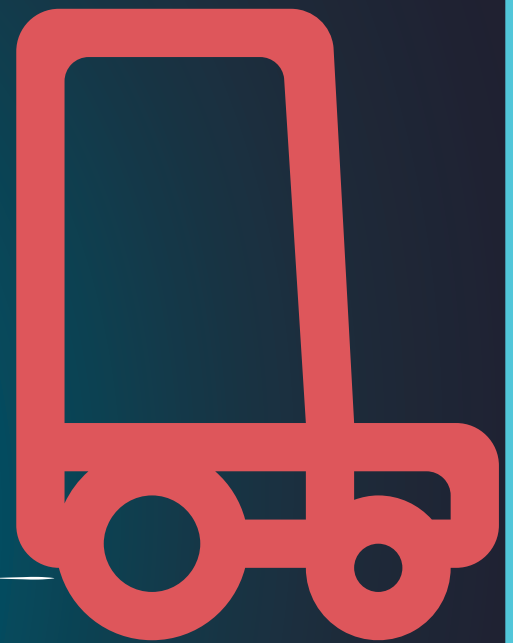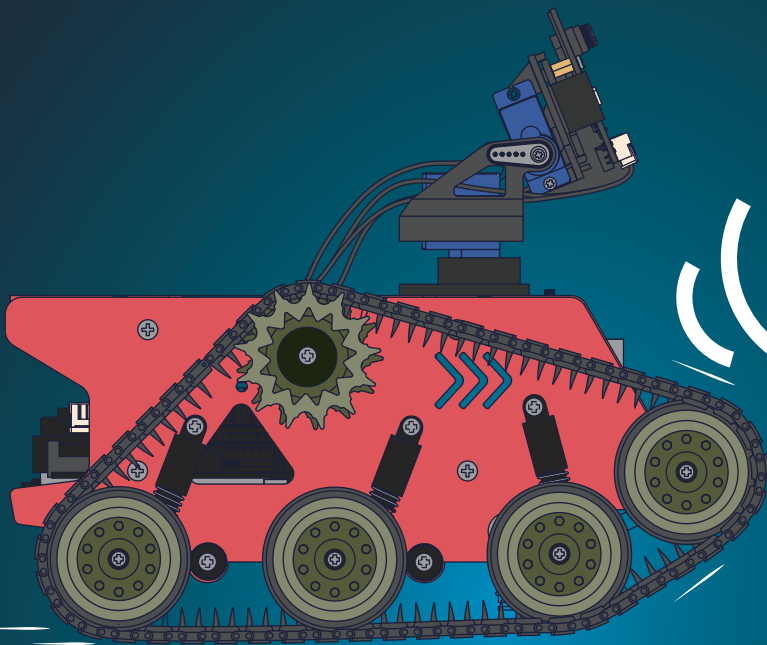# 6 Lesson

Follow Mode

Introduction：

In this lesson, we will teach you how to achieve the Follow Mode of the Conqueror car and make it follow the target to move forward.
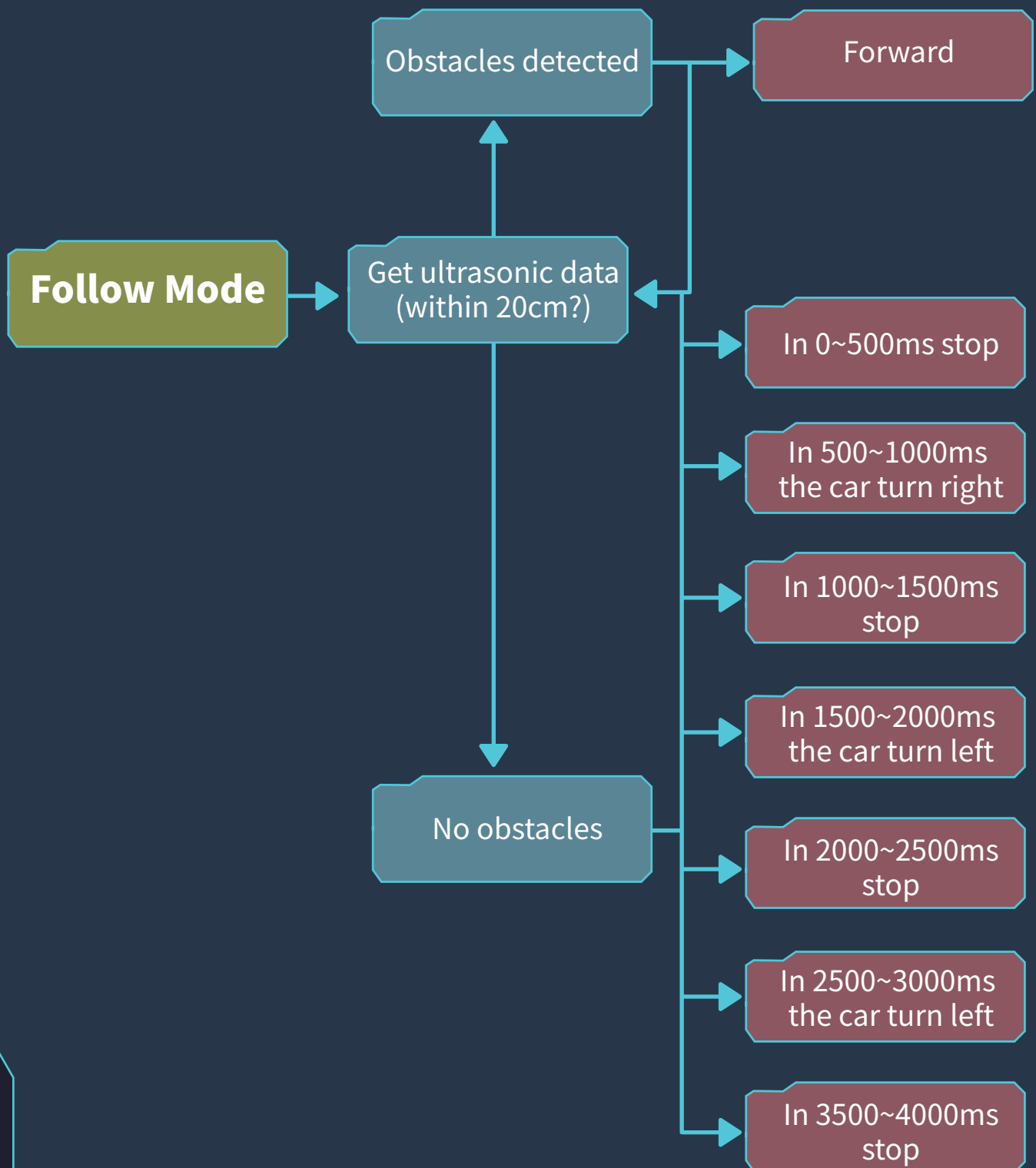
Material Preparation:

A Conqueror Car (with battery)
A USB Cable

The realization of the Conqueror Robot Tank Car's Follow Mode also uses the ultrasonic module, but it is slightly different from the Obstacle-avoidance Mode in usage.

Let's take a look at the overall framework of the implementation principle of Follow Mode using the ultrasonic module and analyze the program:

Implementation principle of Follow Mode

Follow Mode → Get ultrasonic data (within 20cm?)

Obstacles detected → Forward

No obstacles:
- In 0~500ms stop
- In 500~1000ms the car turn right
- In 1000~1500ms stop
- In 1500~2000ms the car turn left
- In 2000~2500ms stop
- In 2500~3000ms the car turn left
- In 3500~4000ms stop

Please open Demo1 in the current folder:

Let's take a look at the definition of following pattern correlation functions and variables:

```cpp
// in ApplicationFunctionSet_xxx0.h
#ifndef _ApplicationFunctionSet_xxx0_H_
#define _ApplicationFunctionSet_xxx0_H_

#include <arduino.h>

class ApplicationFunctionSet
{
public:
  void ApplicationFunctionSet_Init(void);
  void ApplicationFunctionSet_Follow(void);

private:
  volatile uint16_t UltrasoundData_mm;
  volatile uint16_t UltrasoundData_cm;
  boolean UltrasoundDetectionStatus = false;
public:
  boolean Car_LeaveTheGround = true;
  const int ObstacleDetection = 20;
};
extern ApplicationFunctionSet Application_FunctionSet;
#endif
```

Then, for the programming of Follow Mode, you can write down a list of the situations described in the flowchart when the Conqueror car cannot find the target.

```
// in ApplicationFunctionSet_xxx0.cpp
 void ApplicationFunctionSet::ApplicationFunctionSet_Follow(void)
{.....}
```

Upload program. (Please toggle the "Upload-Cam" button to "Upload" when uploading the program.) After successful upload, please put the Conqueror on the ground steadily and then turn on the switch. By default, when the ultrasonic module recognizes that there is a target in front, the Conqueror car will go straight ahead, and when there is no target in front, it will turn to find the target intelligently.