

电机的进阶控制



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PRAT ONE

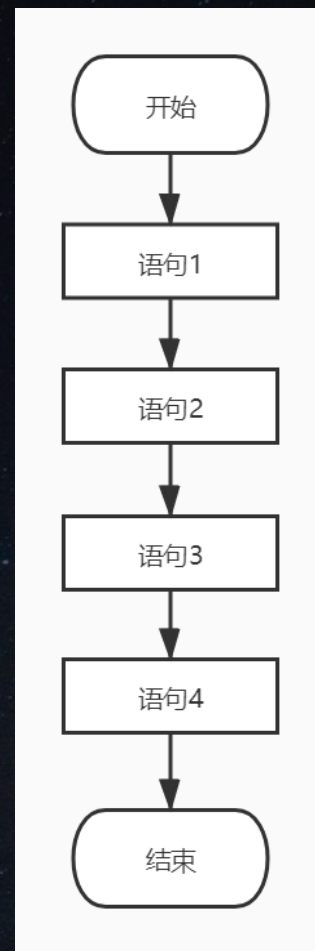
认识顺序结构

认识顺序结构

顺序结构

按从上到下，从前到后顺序执行，直到所有程序运行完毕为止。

顺序结构常用于自动中，按编写顺序执行。



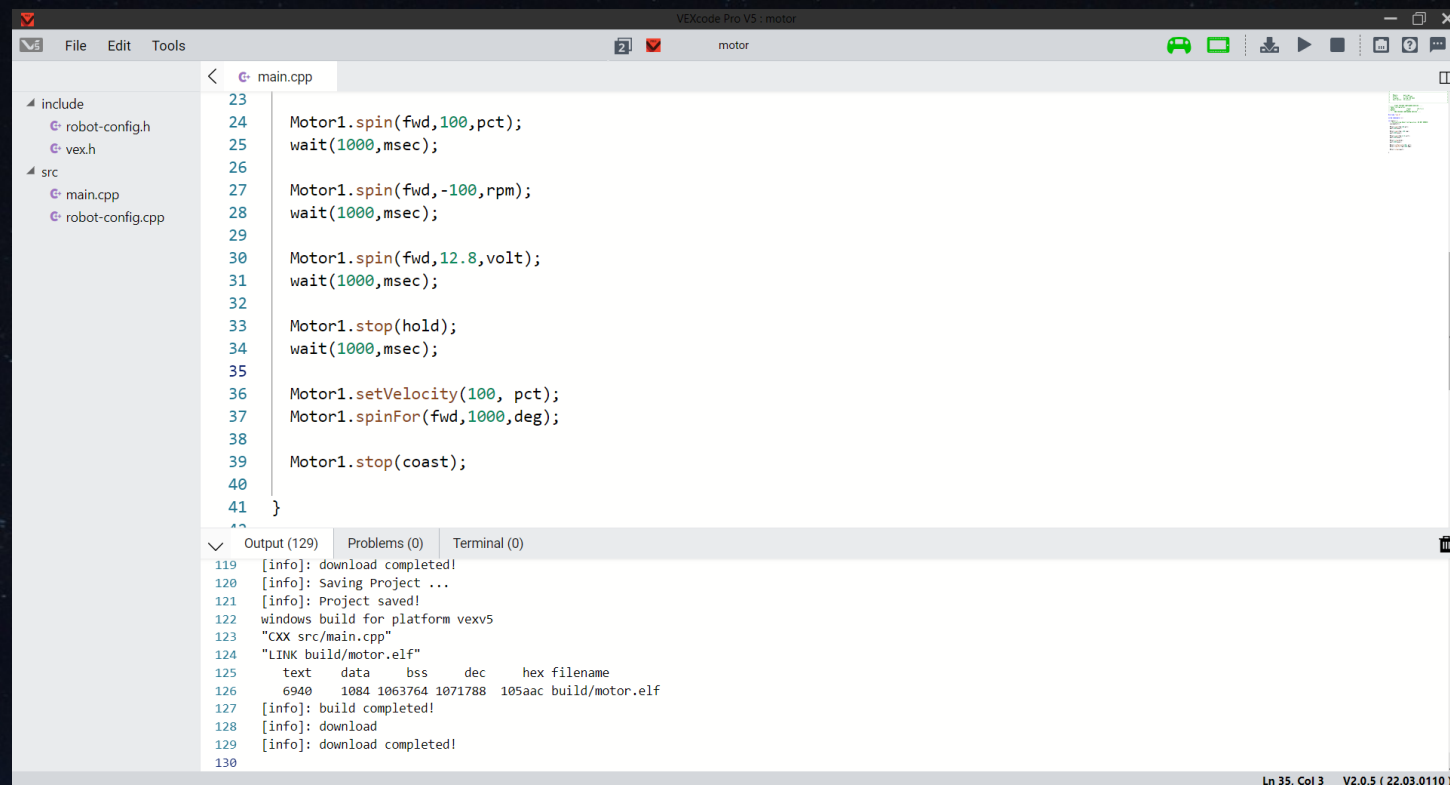
顺序结构



PRAT TWO

控制机器人运动

控制机器人运动



The screenshot displays the VEXcode Pro VS IDE interface. The main editor window shows a C++ file named `main.cpp` with the following code:

```
23  
24 Motor1.spin(fwd,100,pct);  
25 wait(1000,msec);  
26  
27 Motor1.spin(fwd,-100,rpm);  
28 wait(1000,msec);  
29  
30 Motor1.spin(fwd,12.8,volt);  
31 wait(1000,msec);  
32  
33 Motor1.stop(hold);  
34 wait(1000,msec);  
35  
36 Motor1.setVelocity(100, pct);  
37 Motor1.spinFor(fwd,1000,deg);  
38  
39 Motor1.stop(coast);  
40  
41 }
```

The bottom panel shows the Output window with the following log messages:

```
119 [info]: download completed!  
120 [info]: Saving Project ...  
121 [info]: Project saved!  
122 windows build for platform vexv5  
123 "CXX src/main.cpp"  
124 "LINK build/motor.elf"  
125      text    data    bss    dec    hex filename  
126    6940    1084 1063764 1071788 105aac build/motor.elf  
127 [info]: build completed!  
128 [info]: download  
129 [info]: download completed!  
130
```

The status bar at the bottom right indicates the current position: Ln 35, Col 3, V2.0.5 (22.03.0110).

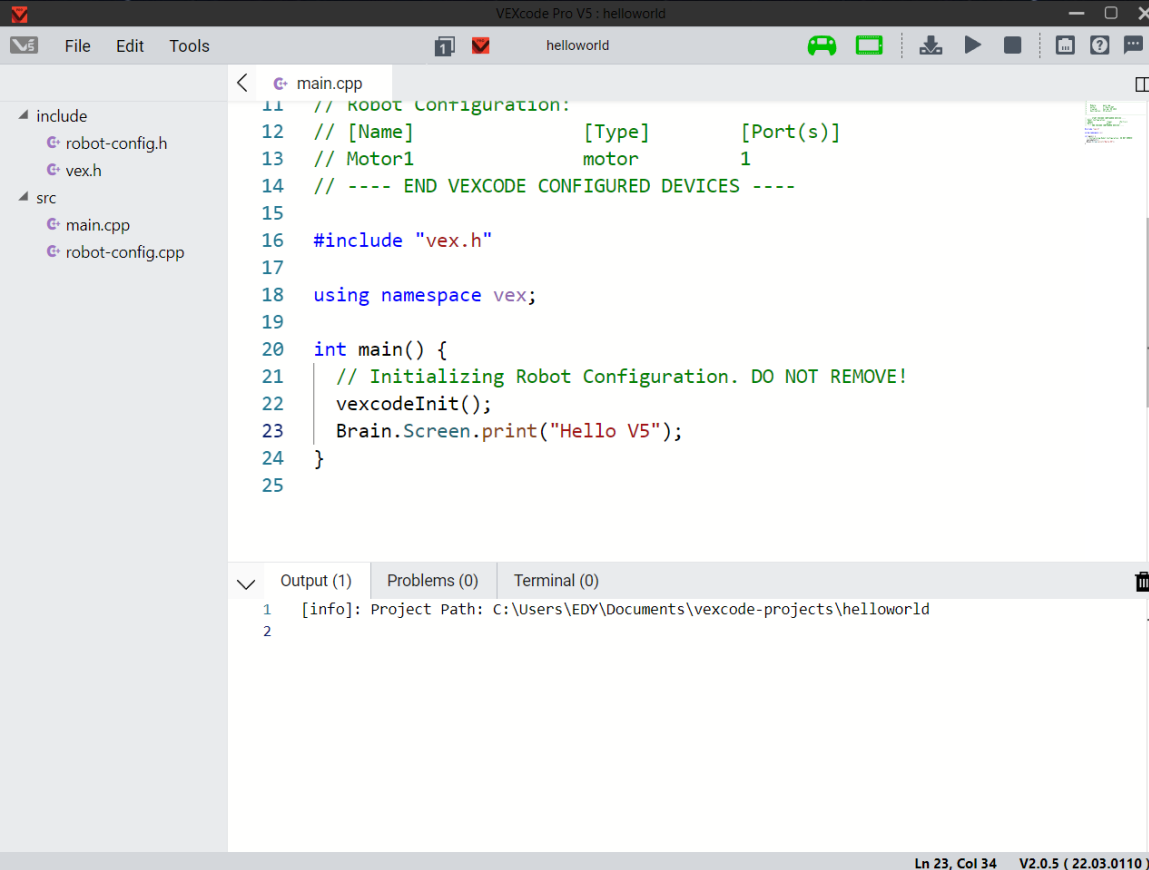
电机运动程序



PRAT THREE

电机内置传感器 及主控屏幕显示

电机内置传感器及主控屏幕显示



```
11 // Robot Configuration:
12 // [Name]                [Type]                [Port(s)]
13 // Motor1                motor                1
14 // ---- END VEXCODE CONFIGURED DEVICES ----
15
16 #include "vex.h"
17
18 using namespace vex;
19
20 int main() {
21     // Initializing Robot Configuration. DO NOT REMOVE!
22     vexcodeInit();
23     Brain.Screen.print("Hello V5");
24 }
25
```

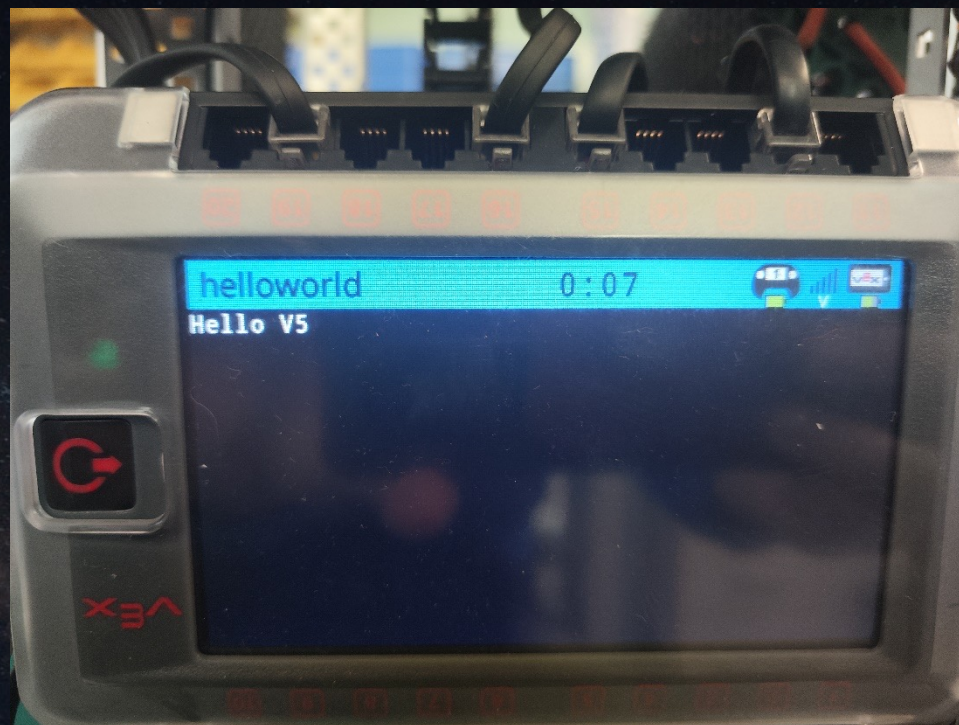
Output (1) Problems (0) Terminal (0)

```
1 [info]: Project Path: C:\Users\EDY\Documents\vexcode-projects\helloworld
2
```

Ln 23, Col 34 V2.0.5 (22.03.0110)

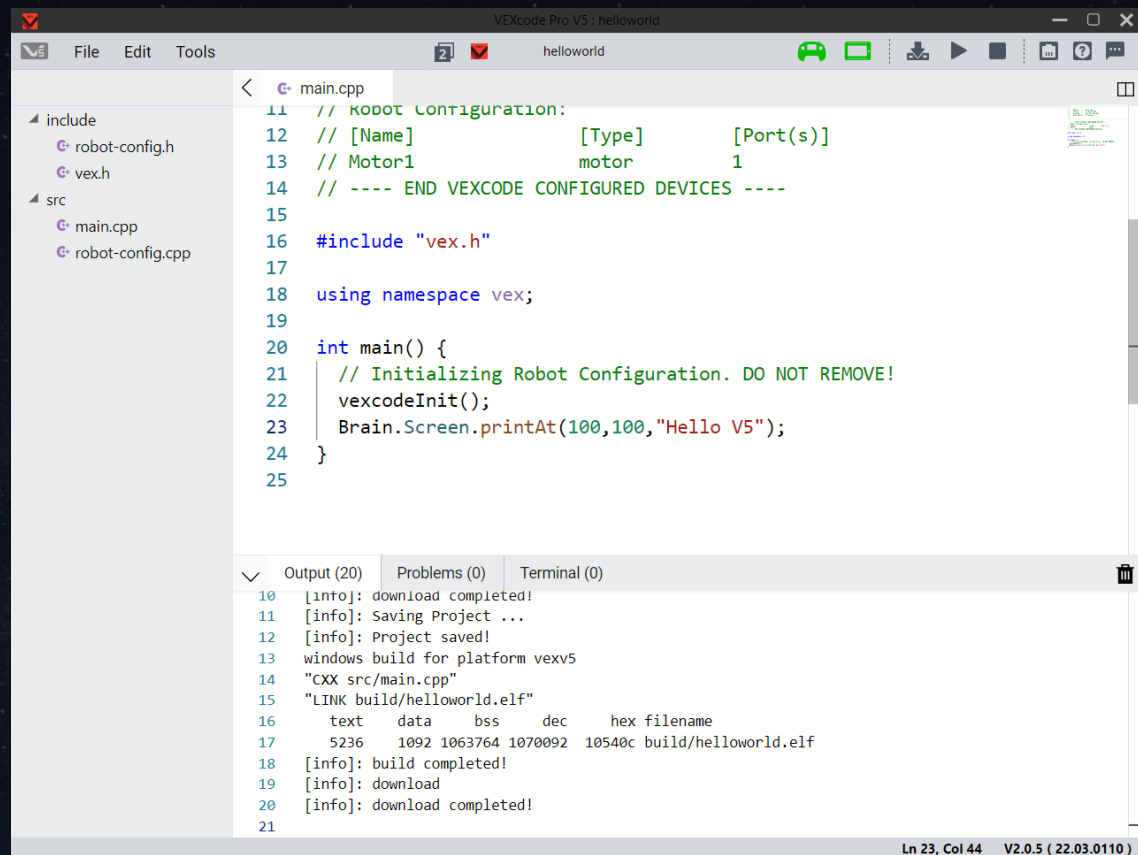
屏幕显示程序

电机内置传感器及主控屏幕显示



屏幕显示效果

电机内置传感器及主控屏幕显示



```
11 // Robot Configuration:
12 // [Name]           [Type]           [Port(s)]
13 // Motor1           motor           1
14 // ---- END VEXCODE CONFIGURED DEVICES ----
15
16 #include "vex.h"
17
18 using namespace vex;
19
20 int main() {
21     // Initializing Robot Configuration. DO NOT REMOVE!
22     vexcodeInit();
23     Brain.Screen.printAt(100,100,"Hello V5");
24 }
25
```

Output (20) Problems (0) Terminal (0)

```
10 [info]: download completed!
11 [info]: Saving Project ...
12 [info]: Project saved!
13 windows build for platform vexv5
14 "CXX src/main.cpp"
15 "LINK build/helloworld.elf"
16 text data bss dec hex filename
17 5236 1092 1063764 1070092 10540c build/helloworld.elf
18 [info]: build completed!
19 [info]: download
20 [info]: download completed!
21
```

Ln 23, Col 44 V2.0.5 (22.03.0110)

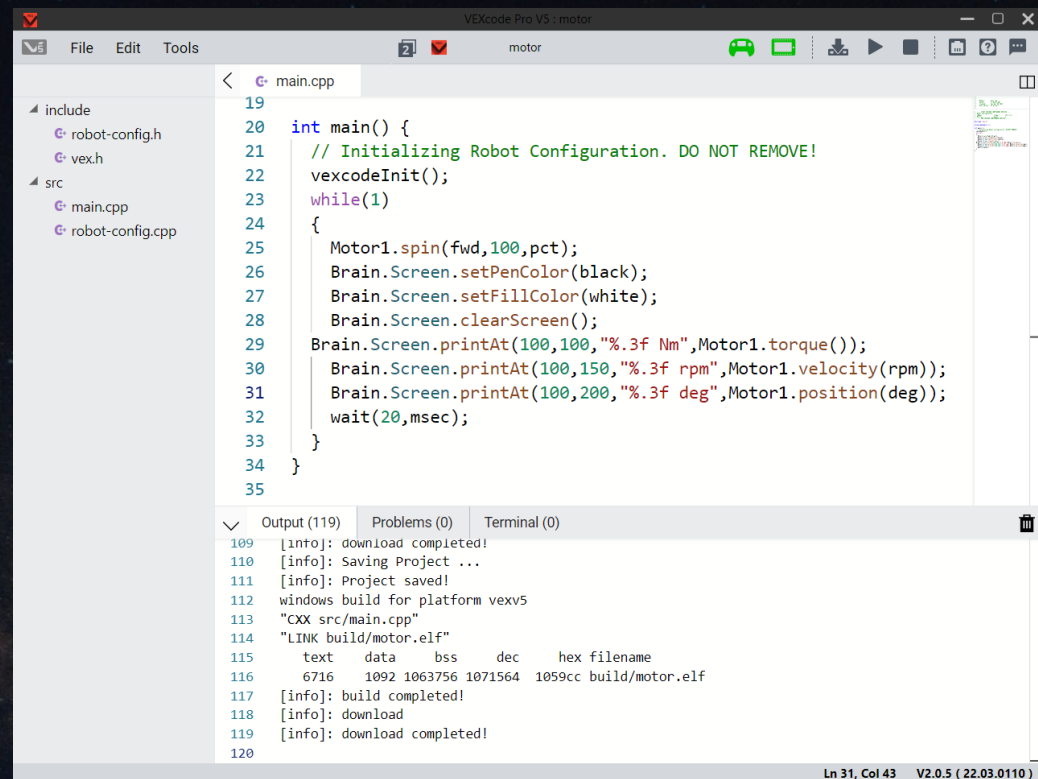
指定位置显示程序

电机内置传感器及主控屏幕显示



指定位置显示效果

电机内置传感器及主控屏幕显示



The screenshot shows the VEXcode Pro V5 IDE with a C++ program in `main.cpp`. The program initializes the robot configuration and enters a loop that updates the motor's torque, velocity, and position on the Brain Screen every 20 milliseconds. The output window shows the successful compilation and download of the program.

```
19
20 int main() {
21     // Initializing Robot Configuration. DO NOT REMOVE!
22     vexcodeInit();
23     while(1)
24     {
25         Motor1.spin(fwd,100,pct);
26         Brain.Screen.setPenColor(black);
27         Brain.Screen.setFill(white);
28         Brain.Screen.clearScreen();
29         Brain.Screen.printAt(100,100,"%3f Nm",Motor1.torque());
30         Brain.Screen.printAt(100,150,"%3f rpm",Motor1.velocity(rpm));
31         Brain.Screen.printAt(100,200,"%3f deg",Motor1.position(deg));
32         wait(20,msec);
33     }
34 }
35
```

Output (119) Problems (0) Terminal (0)

```
109 [info]: download completed!
110 [info]: Saving Project ...
111 [info]: Project saved!
112 windows build for platform vexv5
113 "CXX src/main.cpp"
114 "LINK build/motor.elf"
115 text data bss dec hex filename
116 6716 1092 1063756 1071564 1059cc build/motor.elf
117 [info]: build completed!
118 [info]: download
119 [info]: download completed!
120
```

Ln 31, Col 43 V2.0.5 (22.03.0110)

电机传感器显示程序

电机内置传感器及主控屏幕显示



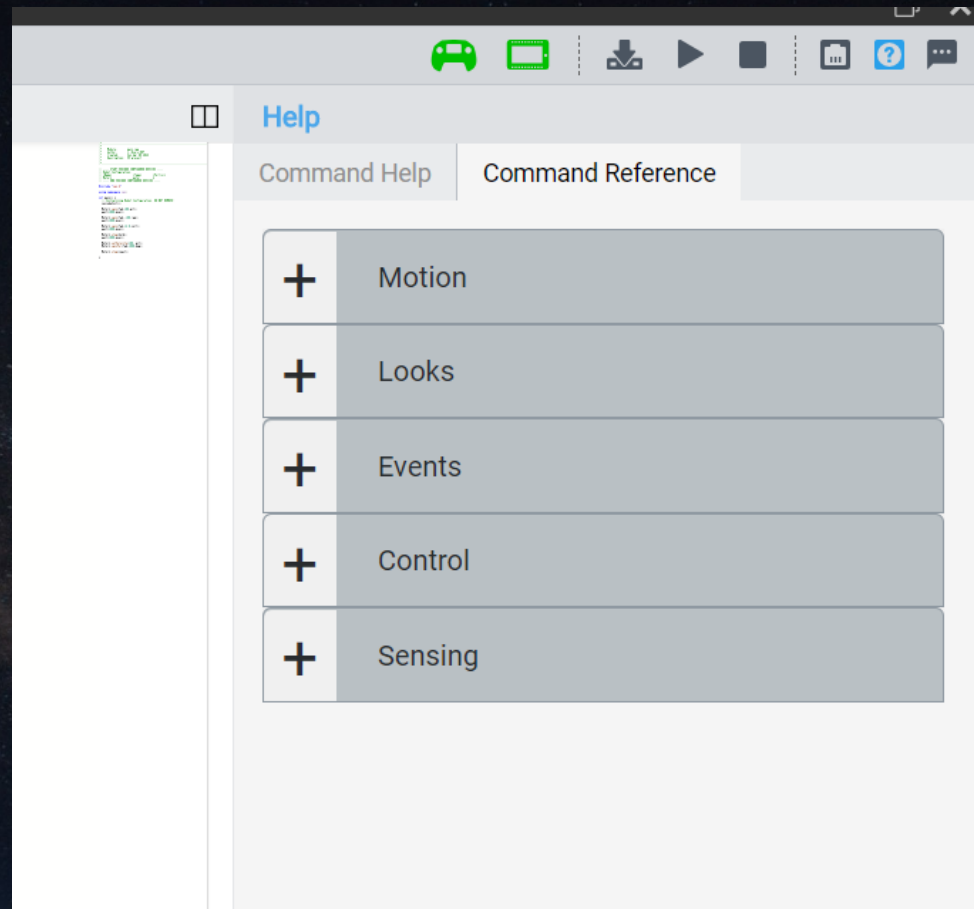
电机传感器显示效果



PRAT FOUR

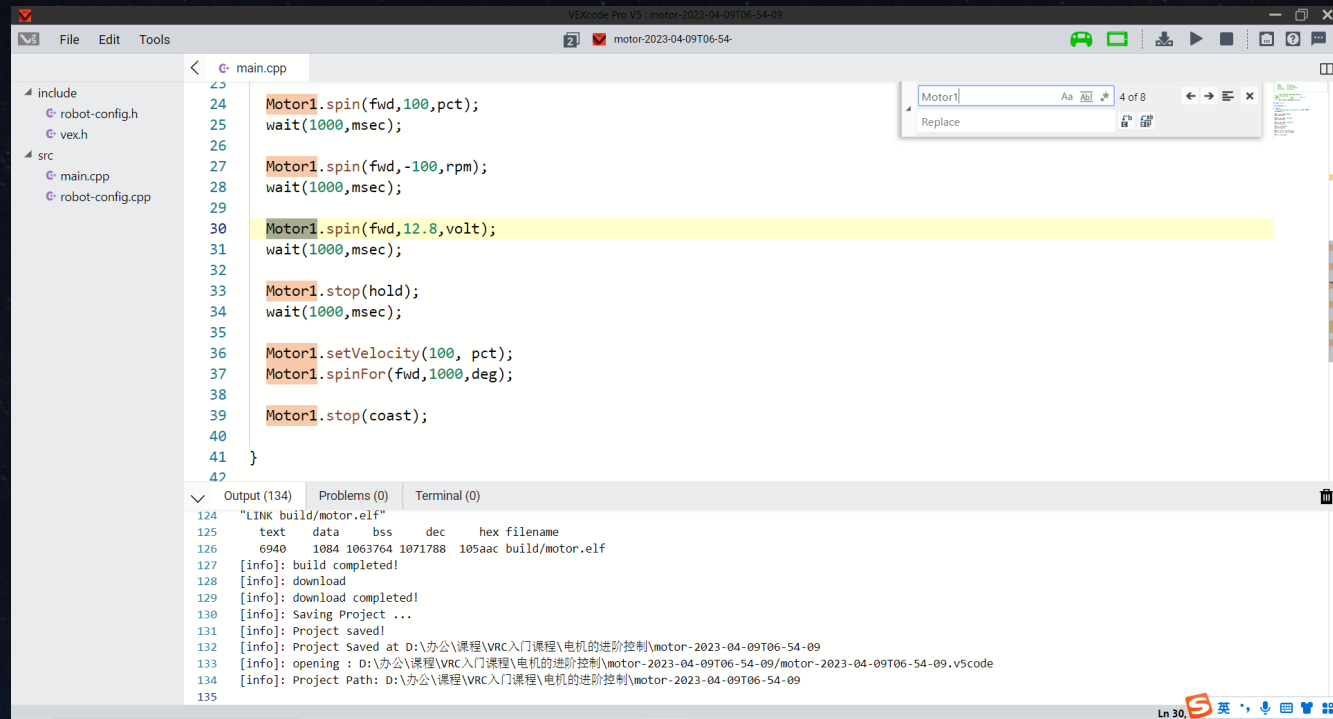
软件进阶

软件进阶



代码参考界面

软件进阶



The screenshot displays the VEXcode Pro V5 IDE interface. The main editor shows a C++ file named `main.cpp` with the following code:

```
24 Motor1.spin(fwd,100,pct);
25 wait(1000,msec);
26
27 Motor1.spin(fwd,-100,rpm);
28 wait(1000,msec);
29
30 Motor1.spin(fwd,12.8,volt);
31 wait(1000,msec);
32
33 Motor1.stop(hold);
34 wait(1000,msec);
35
36 Motor1.setVelocity(100, pct);
37 Motor1.spinFor(fwd,1000,deg);
38
39 Motor1.stop(coast);
40
41 }
42
```

The left sidebar shows the project structure with `include` (containing `robot-config.h` and `vex.h`) and `src` (containing `main.cpp` and `robot-config.cpp`). The bottom panel shows the Output window with the following messages:

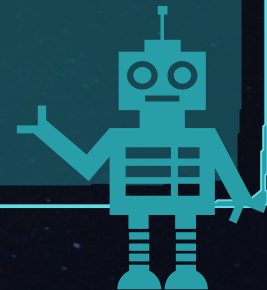
```
124 "LINK build/motor.elf"
125 text data bss dec hex filename
126 6940 1084 1063764 1071788 105aac build/motor.elf
127 [info]: build completed!
128 [info]: download
129 [info]: download completed!
130 [info]: Saving Project ...
131 [info]: Project saved!
132 [info]: Project Saved at D:\办公\课程\VRC入门课程\电机的进阶控制\motor-2023-04-09T06-54-09
133 [info]: opening : D:\办公\课程\VRC入门课程\电机的进阶控制\motor-2023-04-09T06-54-09\motor-2023-04-09T06-54-09.v5code
134 [info]: Project Path: D:\办公\课程\VRC入门课程\电机的进阶控制\motor-2023-04-09T06-54-09
135
```

代码查找

作业

Click on the Input Title

查看命令指南，自学3个课上没有讲过的电机语句，翻译其功能（可使用翻译工具）。



THANKS

— • * * * 科 技 发 展 有 限 公 司 • —



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