CHAPTER FOUR

SIMULATION AND RESULT

4.1 Overview

In this chapter the system that where described in chapter 3 will be test and classify through simulation. Circuit will be described .The output of sensor income for the microcontroller, and thereby can control the output.

4.2 Testing sensors

As shown in figure 4-1, the production of pulses in sensor is similar to ultrasonic sensor. The pulse duration is fixed 1.08; figure 4.1 show the Pulse Duration of output sensor.

10.8*0.1=1.08 ms.

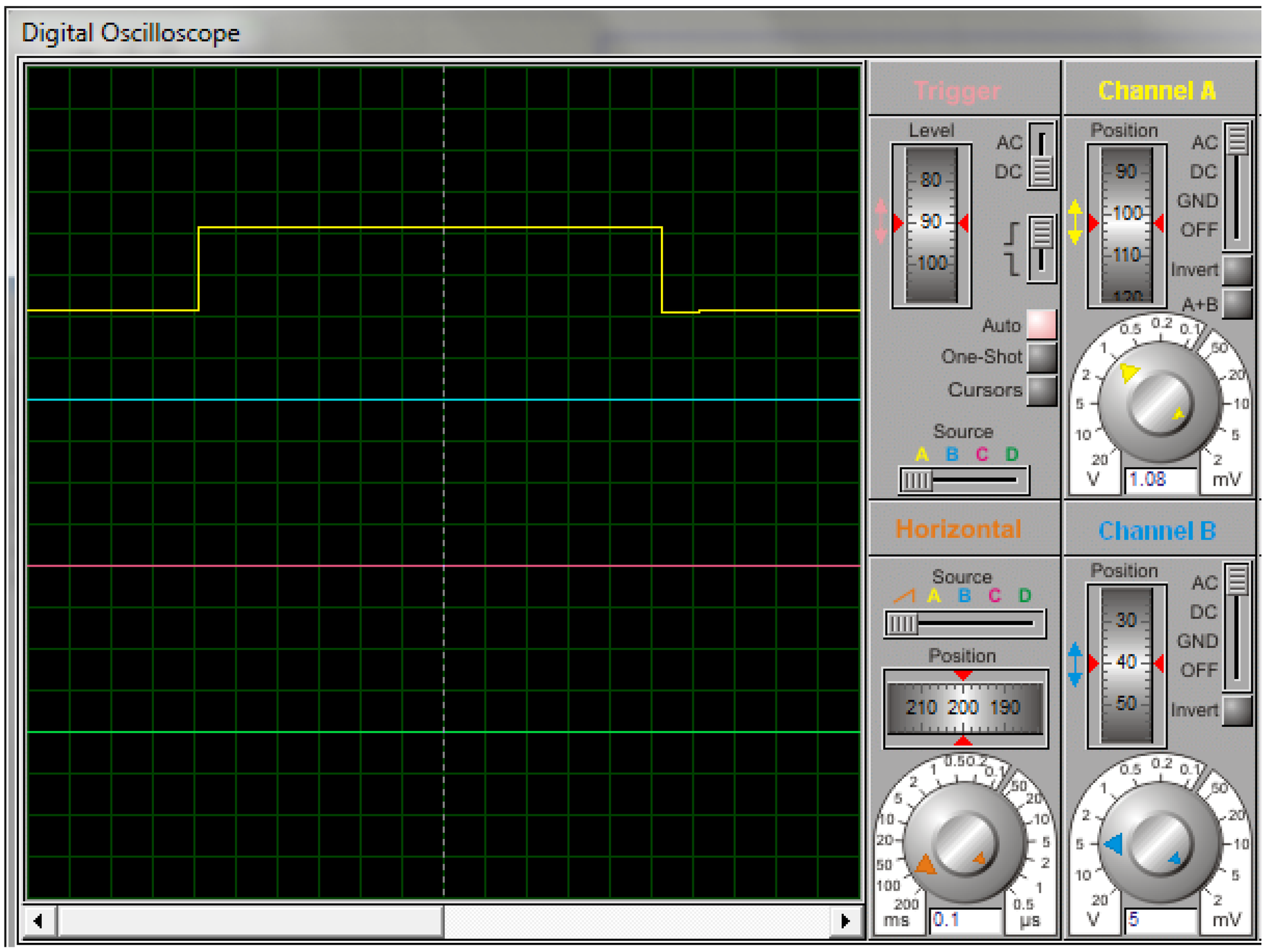

Figure 4-1: Pulse Duration of outputs.

4.3 Read distance and speed

As shown in figure 4-2, after reading the number of pulses incoming, Distance is displayed on the screen after calculations.

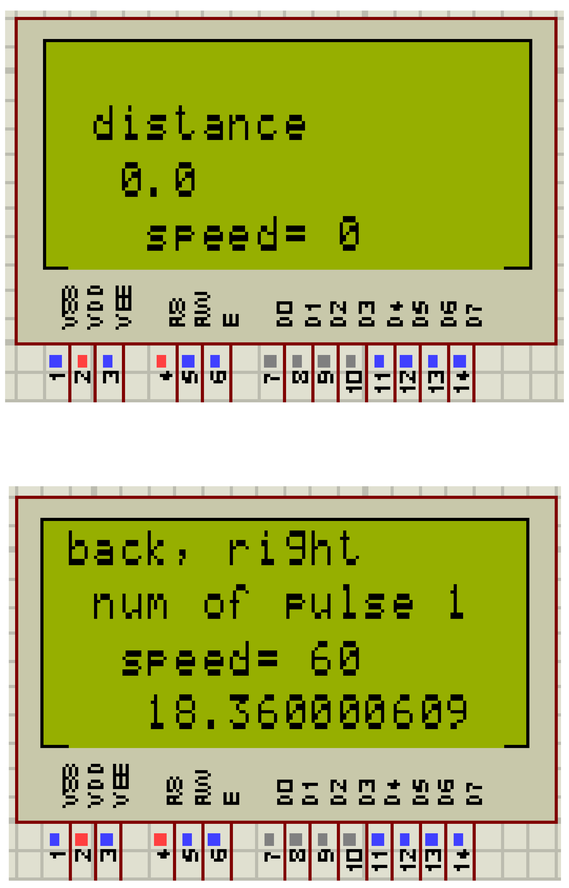

Figure 4-2: Distances and Speed in LCD.

Note here the distance in centimeters.

The relationship between the number of pulses and the distance is show in
Table 4-1

Table 4-1: The relationship between number of pulses and the distance.

NO OF PULSES	DISTANCE IN CM
1	18.36
2	36.72
3	55.07
4	73.44
5	91.79

4.3.1 Scenario 1

As shown in figure 4-3, when distance is very small and speed is low the motor1 will turn right and motor2 will return back. And the speed will change

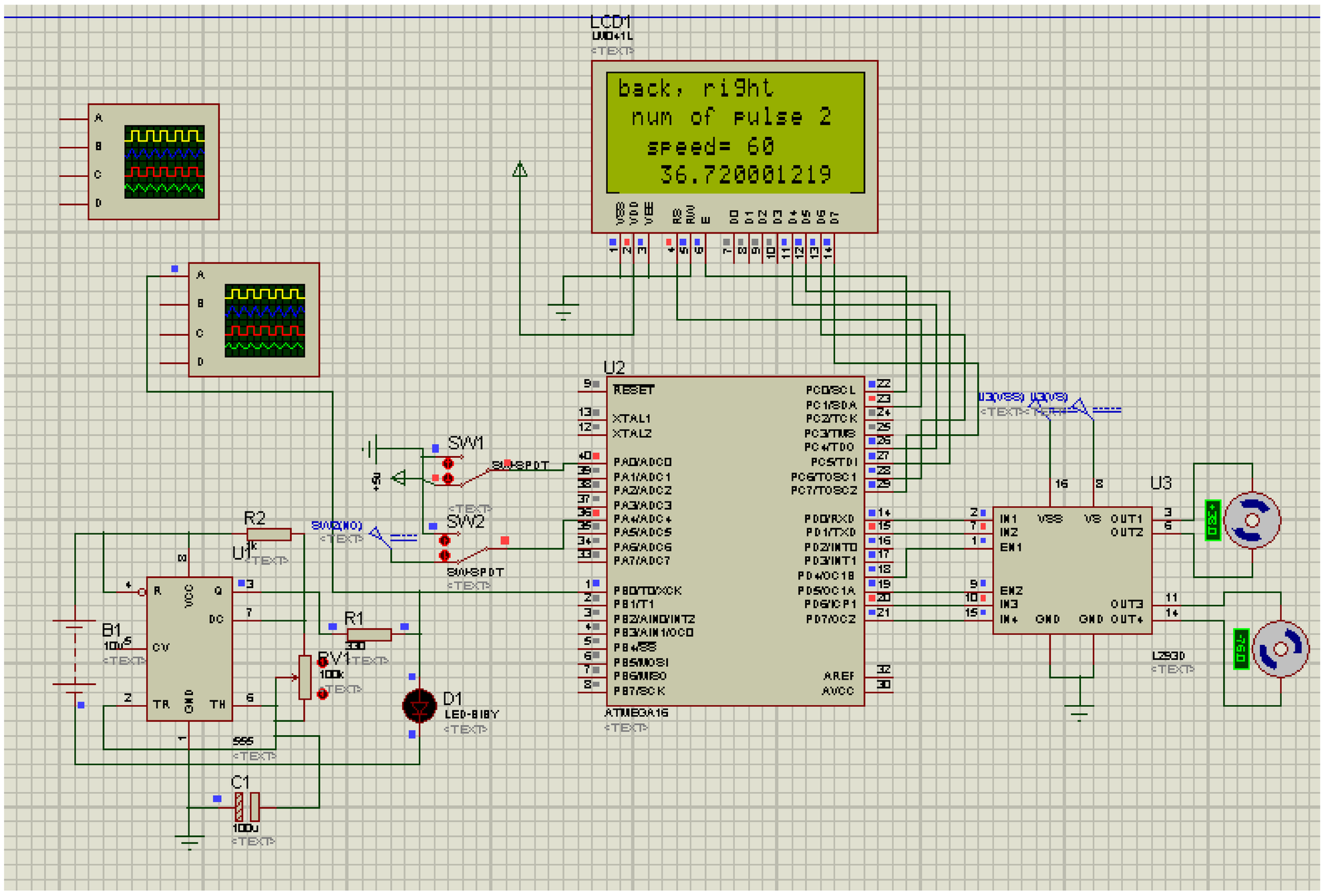

Figure 4-3: Scenario1

4.3.2 Scenario 2

As shown in figure 4-4, when distance is very short and speed is medium motor1 will stop and motor2 will go forward. And the speed will change evaluating to distance.

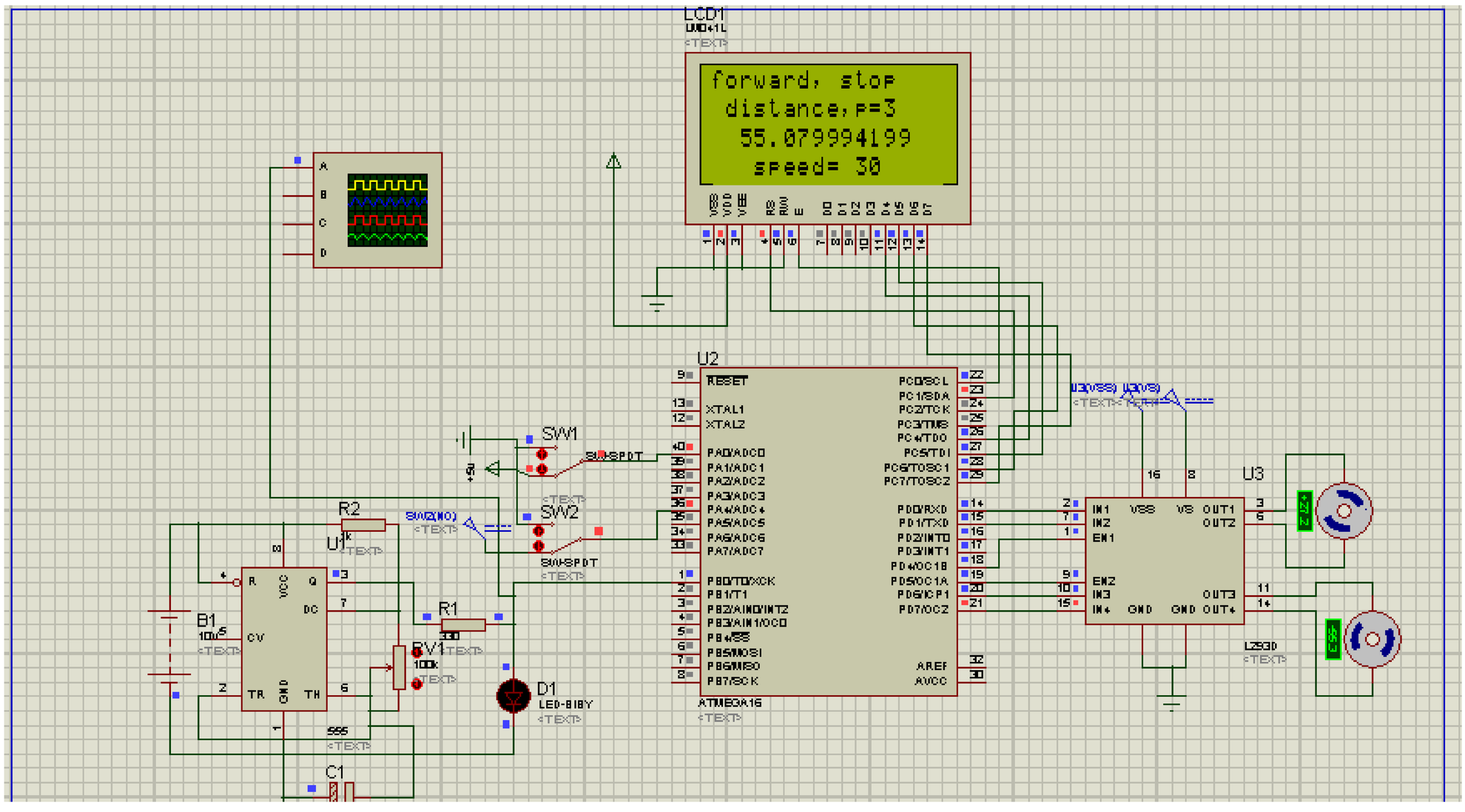

Figure 4-4: Scenario2

4.3.3 Scenario 3

As shown in figure 4-5, when distance is large and speed is medium motor1 will stop and motor2 will go forward. And the speed will change according to distance.

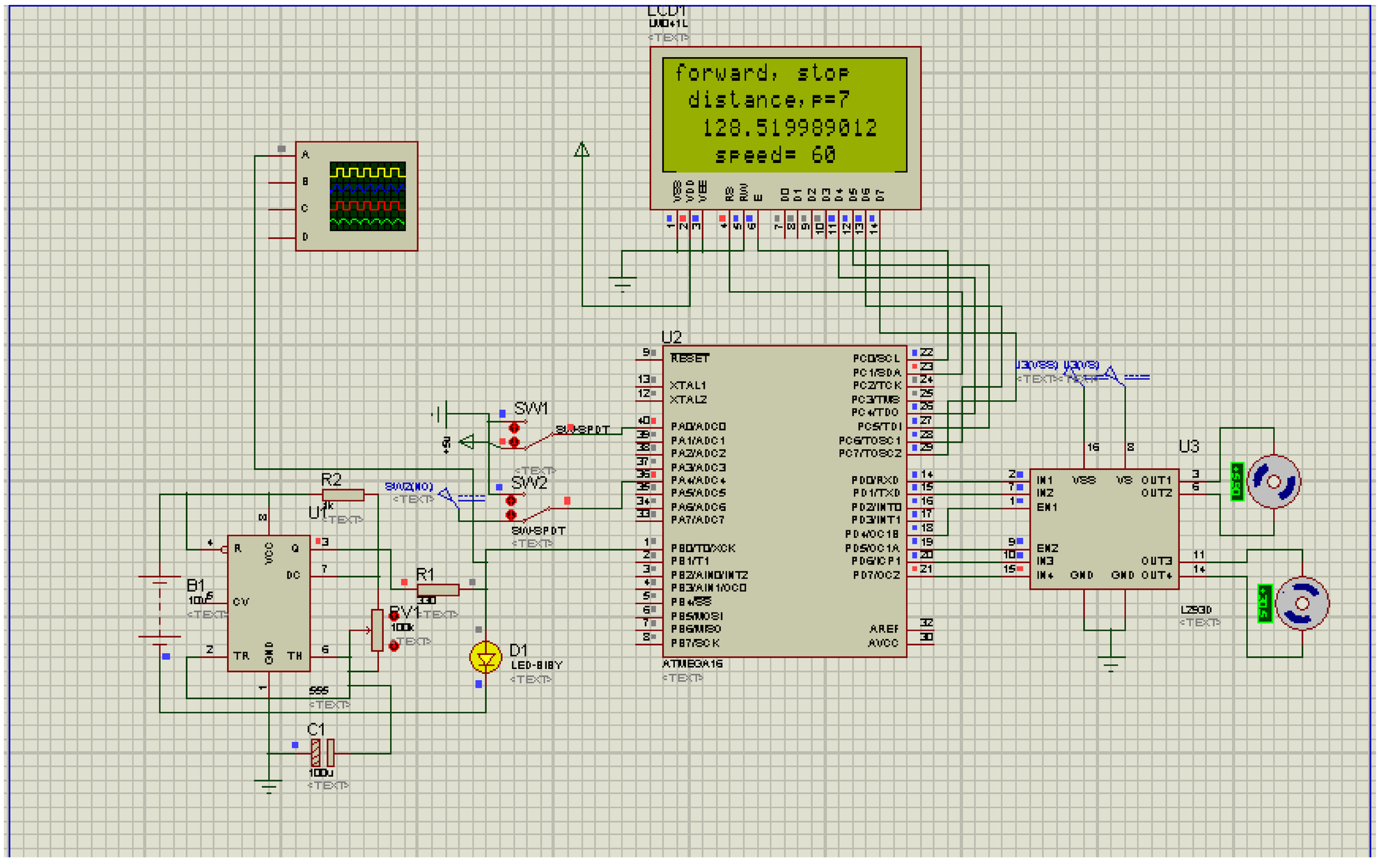

Figure 4-5: Scenario3

4.3.4 Scenario 4

As shown in figure 4-6, when distance is very large and speed is very high motor1 will stop and motor2 will go forward. And the speed will change according to distance.

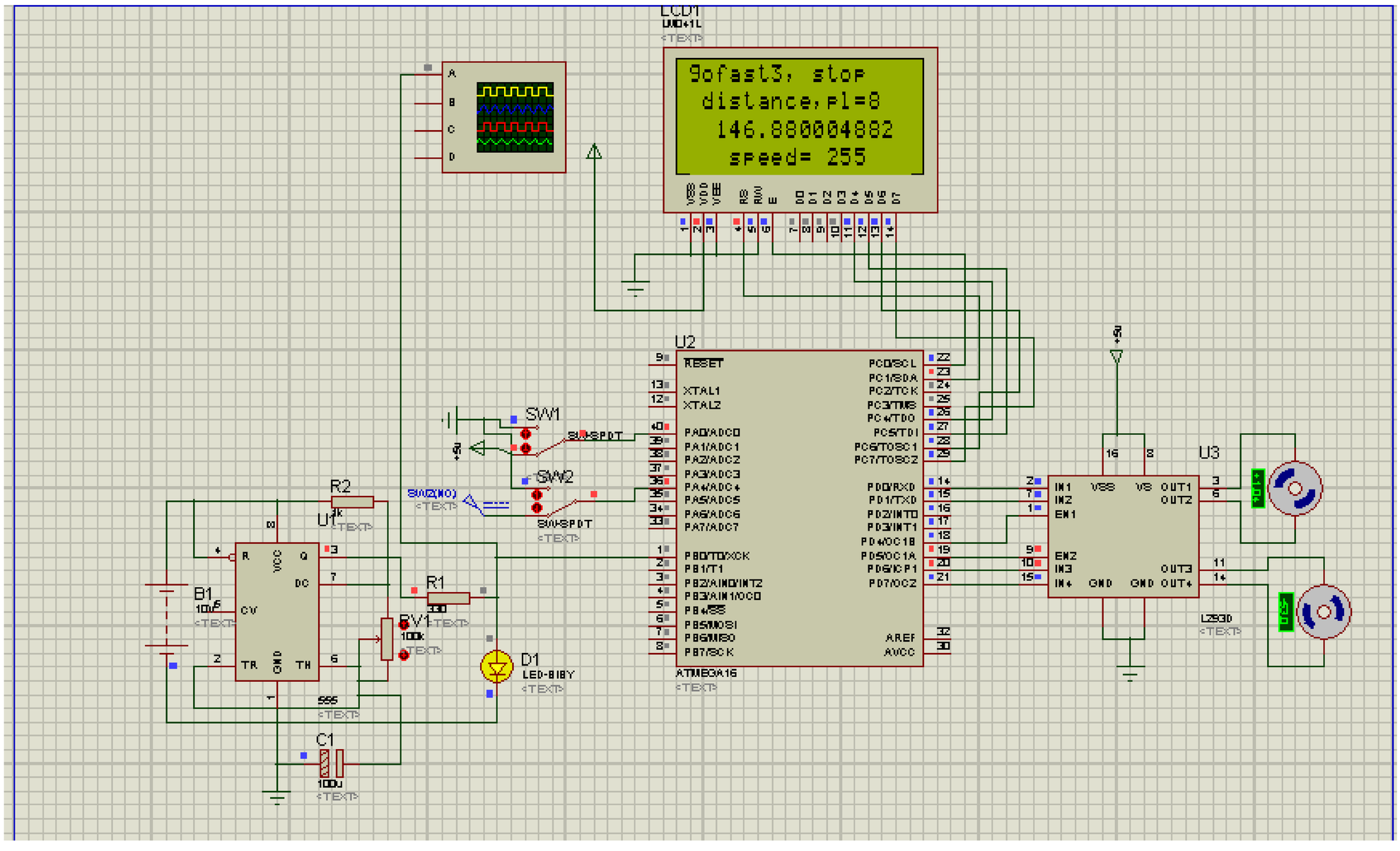

Figure 4-6: Scenario4