APPENDIX A: DETAILED SCHEMATICS AND PCB LAYOUT

In this appendix, we provide the detailed schematics and PCB layout of our 3D surface weaving machine's control system.

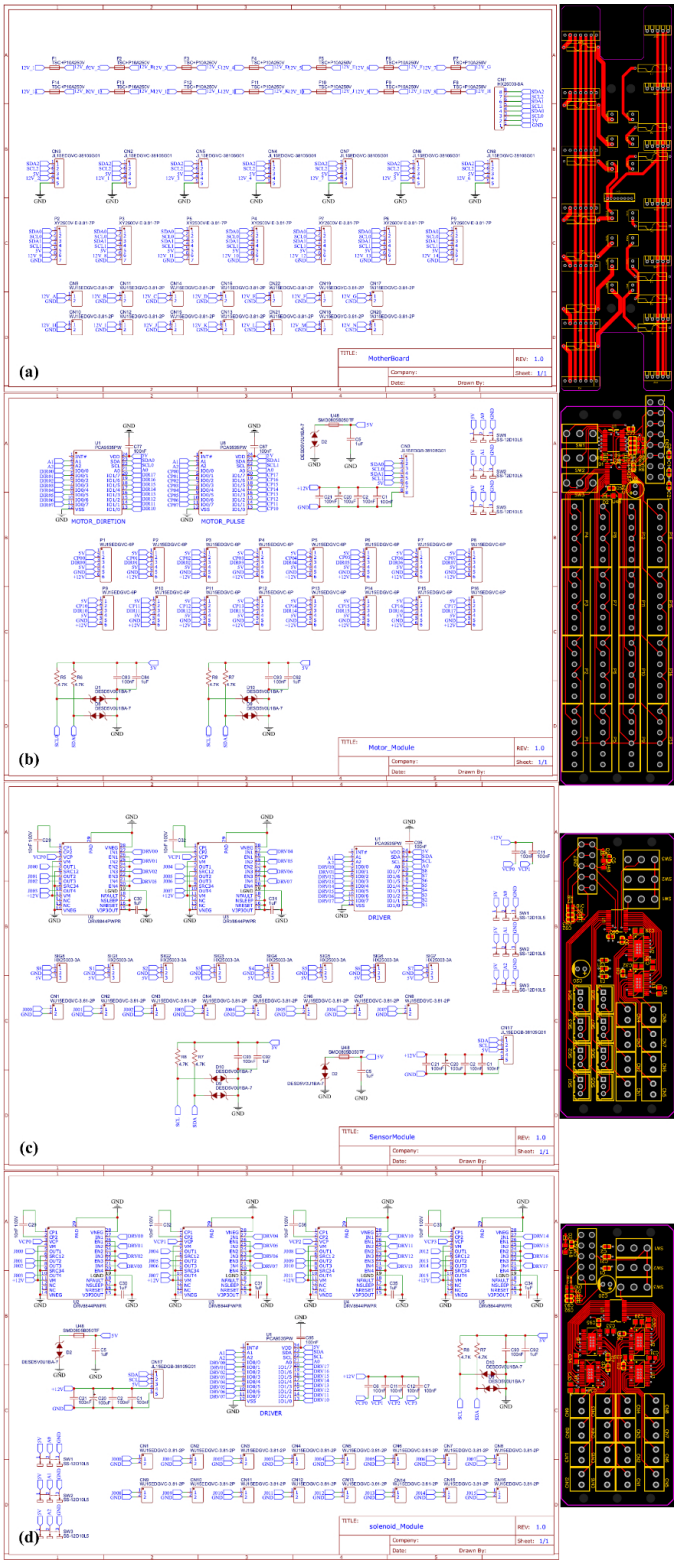

Fig. 1. The detailed schematics and PCB layout for motherboard(a), module of motor(b), module of sensor(c), and module of solenoid(d).

The whole control system consists of a motherboard, 7 motor modules, 6 solenoid modules, and one sensor module. See Fig.1 for the details. The motherboard with 12V-100A as power input has 14 interfaces for different modules, which allows quick change and further module development. Besides PCA9535, driver chip DRV8844 is employed as a power transformer in the solenoid modules.

APPENDIX B: EXAMPLE W-CODE

We list the example W-code of the back piece of the vest below (in Fig.2). It is corresponding to the weaving map in coarse resolution that has been shown in Fig.8(d).

```
A                D1               D1
B01010101010101  B00010101010100  B01010101010101
C11111111111111  C11111111111111  C11111111111111
D0               D0               D0
B10101010101010  B00000000001010  B00101010101010
C11111111111111  C00000000001111  C11111111111111
D1               D1               D1
B01010101010101  B00000000000101  B01010101010100
C11111111111111  C00000000001111  C11111111111111
D0               D0               D0
B00101010101010  B00101010101010  B00101010101010
C11111111111111  C11111111111111  C11111111111111
D1               D1               D1
B01010101010101  B01010101010101  B01010101010100
C11111111111111  C11111111111111  C11111111111111
D0               D0               D0
B00101010101010  B00101010101010  B00101010101010
C11111111111111  C11111111111111  C11111111111111
D1               D1               D1
B01010101010100  B01010101010101  B00010000000000
C11111111111111  C11111111111111  C11110000000000
D0               D0               D0
B00101010101010  B10101010101010  B00100000000000
C11111111111111  C11111111111111  C11110000000000
D1               D1               D1
B00010101010100  B01010101010101  B00010101010100
C11111111111111  C11111111111111  C11111111111111
D0               D0               D0
B00101010101010  B10101010101010  B00001010101010
C11111111111111  C11111111111111  C11111111111111
                                  D1
                                  E
```

Fig. 2. The example W-code for the back piece of the vest.