

Foot Pressure Sensor Board

Overall

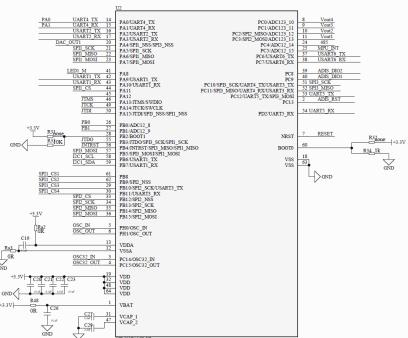
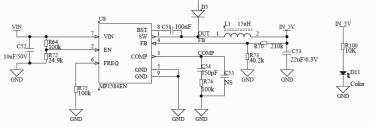
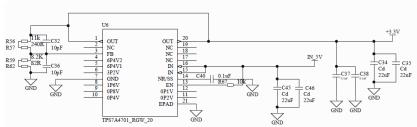
The foot pressure sensor board reads 4-way analog signals of the pressure voltage through ADC1/2/3/4. Pressure data is sent through UART1, and transferred into RS-485 signals to upper computer TX1/TX2.

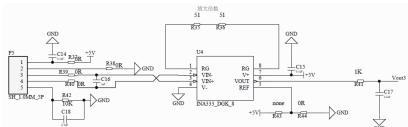
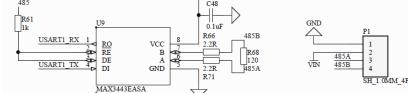
The pressure data is packed in the same protocol as Dynamixel motors, which means the pressure board is mocked as a Dynamixel servo motor for transfer. The main processor of the board is STM32F405RGT.

Schematic Doc

 [FootSch.pdf](#)

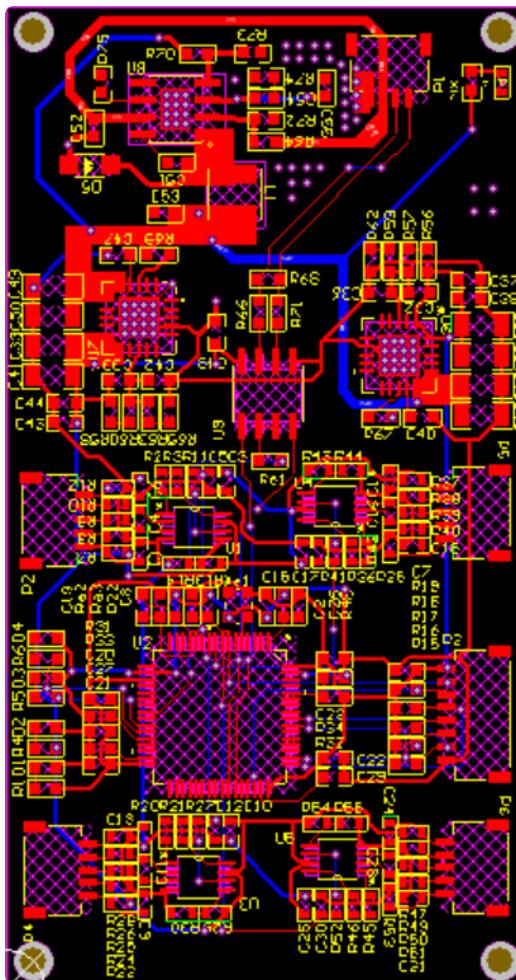
Click [here](#) to see the full schematic doc of the foot pressure sensor board.

Fig	Key Module Name	Description
	STM32F405RGT	<ul style="list-style-type: none">Main processor
	MP1584EN	<ul style="list-style-type: none">Step-Down ConverterNum: 1Input: 12VOutput: 5V
	TPS7A4701RGW	<ul style="list-style-type: none">Voltage RegulatorNum: 2Input: 5VOutput: 3.3V & 5V

	INA333_DGK_8	<ul style="list-style-type: none"> • Amplifier • Foot pressure voltage amplification • Num: 4 • Gain: 1000
	MAX3443EASA	<ul style="list-style-type: none"> • RS-485 Transceivers

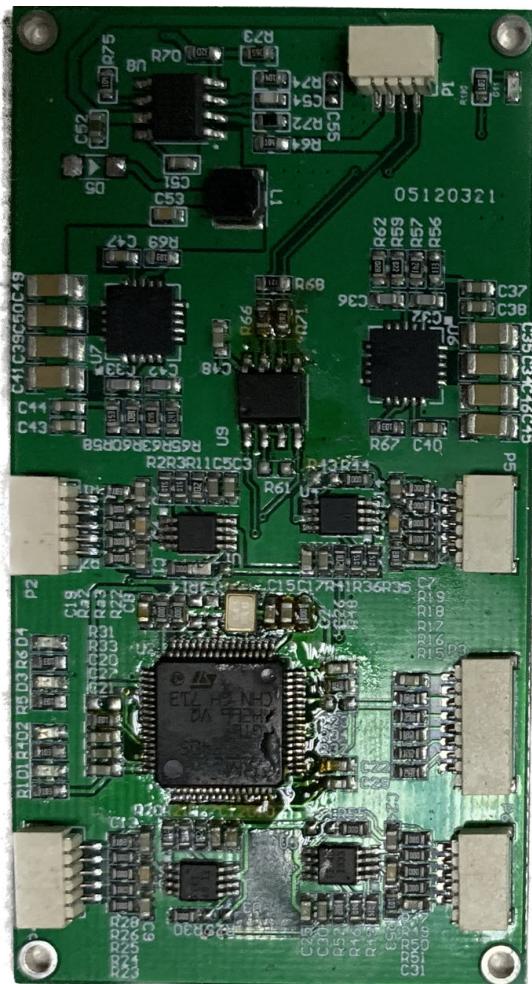
PCB Board

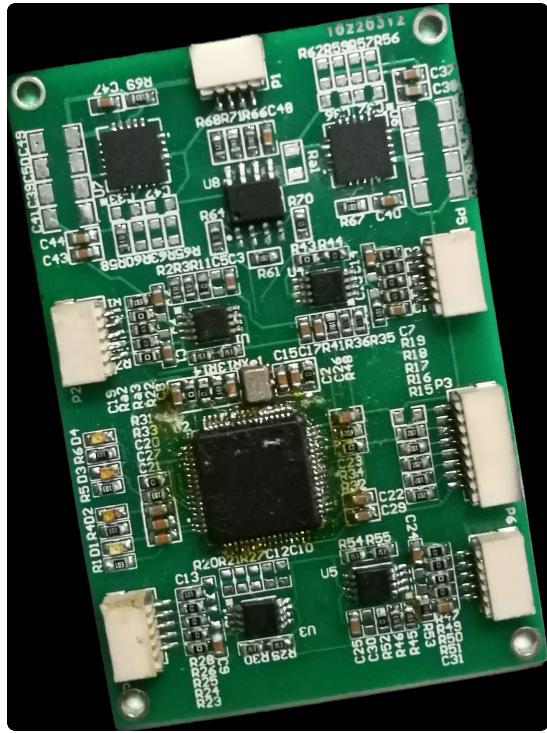
A screenshot of the PCB design.



Soldering Details

This board is designed with plenty of 0603 resistors and capacitors. I soldered the resistors and capacitors with solder paste and a heat gun. For chips, I used electric solder iron and soldering tin.





Assembled Foot Module



