Embedded systems components testing plan

what to test?	Why is it important?	How will the test be done?
Firmware testing	• Erroneous values • To avoid variable overflow • Compiler optimization • To detect and avoid typos	• Review the code • Diagnostic firmware (all possibilities) • Test driven development (TDD) • Unit tests done with the help of platformIO unit testing
Board bringup related testing	• Soldering issues • Power failures • Some sections might not working • Signal might not present in the proper ports • Board might be over heat and destroy parts • Required voltages might not come • Ripples due to frequency	• First Soldering power sources and Testing power supplies, voltages Using oscilloscope , logic analyzers • Check whether parts are getting overheated by a thermal camera while soldering and executing • Check connectivity using multimeter resistance mode
Sensor indicating and hardware protocol testing	• Identify any malfunctioned components • Ensure protocol functionality	• Compared with the data sheet
Pressure testing	• Hardware structure stability , rigidness failures	• By applying specific weights and forces