Lab Report: 4th Nov. 2015

Problems faced:

1. Various difficulties in the final circuits on PCB
    a. Capacitor dysfunctional: Replaced by new one.
    b. IC 7912 for negative voltage stopped functioning : Replaced by a new one.
    c. Due to excessive heating at times, there were problems : Heat sinks are now in place.
    d. LCD stopped working when soldered on PCB : Debugging complete
    e. Microcontroller code having various issues : Debugging still left.
    f. Offset voltage : Adjusted by adjusting gain properly and taking care of the power supply.

Possible Modifications:

1. Low pass filtering using RC on the output of the sensor
2. Decoupling the sensor by using a capacitor across its power supply
3. In the microcontroller code, implementing a mode filtering function to improve the stability of the readings and accuracy
4. Using 1.1V reference voltage so as to measure weights of lesser resolutions as well.
5. Implementing higher order butterworth (or other) filters to improve the stability of the data.

Conclusions:

The project is almost complete with only thing that is left now is to improve the data stability on the LCD and to improve the resolution of the whole device. Both of these tasks are very much achievable and can be posted as an aim of an experiment to students.
Here is a picture showing the complete setup: