

BE87 FRESHMAN SEMINAR

WEEK 10: FINAL REPORT

- Use computers in lab to organize and compile your final report
 - Use Word to create a single file for the design report
 - Use of color is encouraged!
 - One report for each station (2 lab partners submit one report)
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BE87 FRESHMAN SEMINAR: SAMPLE REPORT PAGE WITH FIGURE CAPTION

The Electrocardiogram: Design and testing of hardware and software instrumentation

BE87, Spring 2017

Lab partners: Jeff Omens and Joe Partner

The electrocardiogram (ECG or EKG) is a recording of the electrical potentials generated by the heart. The signals are recorded on an electrocardiograph machine for clinical assessment. In this course we designed, constructed and tested a hardware/software solution for recording and displaying human electrocardiograms. Simple analysis of noise and clinical ECG parameters were measured. The following document is a compilation of the 9 sections of the course.

The following circuit formed the basis of our amplifier design:

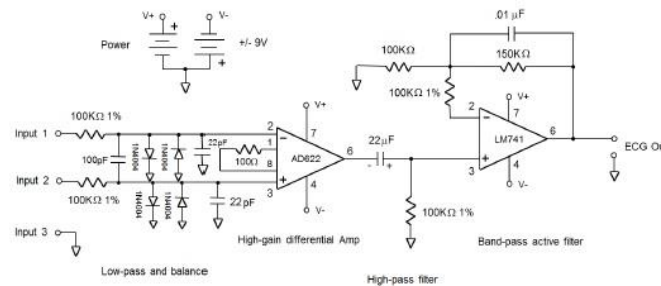


Figure 1: Schematic diagram of an ECG amplifier, showing 9V battery supply, input and output, and amplifier and filtering sections. Input diodes are used for overvoltage protection of the subject.

The electronic circuit was built on a bread board from standard discrete components, and received power from 2 9V batteries. The initial tests of the circuit were done by connecting an oscilloscope to the output of the amplifier, and then using skin electrodes on the subject, with one electrode on each wrist, corresponding to a clinical Lead I configuration of ECG measurement. The ground or common input to the system was connected via another electrode to the arm of the subject. The 2 inputs are used for the differential signal into the

This is just showing formatting and a Figure caption (“Figure 1...”). The title and authors would only be on the first page of the report, and some sub-headings would be added as appropriate.

WEEK 10 TOPICS FOR FINAL REPORT

- Review each week's "Reporting goals"
- Include those sections/plots/analysis covered Weeks 1-9.
- Overall you should limit each week's content to about 1 page (including figures). This is just a guide, some sections will be longer, some shorter. Overall Aim for 10 Pages total in the final document, but this is not a strict requirement.
- Include text for a figure "caption" under each figure
- Divide your overall report into main sections with sub-headings. These can be guided by weekly goals. For example a section heading might be "Circuit Schematic and Bread-boarding". Best not to label your sections "Week 1, Week 2", etc, try for more descriptive terms.

WEEK 10 TOPICS FOR FINAL REPORT (CON'T)

- Include a final section (paragraph) on limitations and future enhancements of this design
- Comment on novel features that could make a competitive commercial product for clinical use.
- Submit your final report (1 per station) as a PDF file to Dr. Omens, jomens@ucsd.edu, by 6pm on June 13th.