

## Texas Instruments MCU Design Challenge 2014

1. Include the following statement and place the signatures of all team members:-

"We, authors of the report entitled \_\_\_\_\_, confirm that this report has not been submitted to any other forum such as another contest or conference for publication. We understand that Texas Instruments has the right to use this report in its conferences/publications after seeking due permission from the author(s)/owner(s).

2. Comment on the originality of your idea. Did you derive inspiration from any other work? Provide the appropriate references.
3. List any persons who helped you in the course of the project and explain their contribution.
4. Highlight at least two technical challenges you faced and how you overcame them.
5. Please highlight at least two non-technical challenges you faced and how you overcame them.
6. Explain how the experience of the Texas Instruments MCU Design Challenge 2014 helped you.
7. List two things that could have added further value to your project.
8. Please tick all aspects of your project that you believe are now complete.

Paper design of hardware <input type="checkbox"/>	Algorithm/software design <input type="checkbox"/>
Hardware implementation on breadboard <input type="checkbox"/>	System-level testing with examples <input type="checkbox"/>
Hardware implementation on PCB <input type="checkbox"/>	Benchmarking/Performance Analysis <input type="checkbox"/>
Hardware Testing <input type="checkbox"/>	Short Video on Project <input type="checkbox"/>
	YouTube Video Link : _____

Names and signatures of Team Members

# Paper Title

Team Member-1, Team Member-2, Team-Member-3  
Team Name  
Company Name

**Abstract**—Provide an abstract about 100 to 150 words summarizing your project and your achievements.

**Keywords**—TIMDC 2014 report guidelines; formatting; style

## I. INTRODUCTION

This document is a *suggested template* on how to document your TIMDC 2014 project. Do not try to artificially fit your document into this template. The overall structure of your paper should be as detailed in Figure 1. Explain the motivation for your project. Does your project have a social theme? What inspired you to do this project? Did you extend an existing project (give references)? What was the goal of your project, such as optimizing the cost/performance/power?

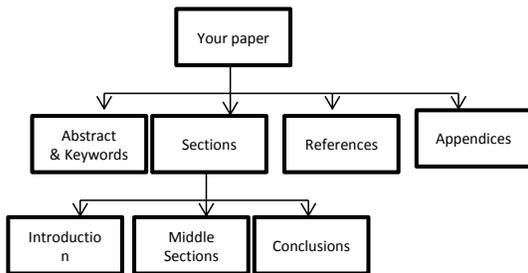


Figure 1: Structure of your paper

### A. Technical Background

Explain the technical background for your project by referring to previous publications that you found. Provide references of any prior work in this area and explain how your project fares in comparison.

### B. Proposed Solution

Please provide a top-level block diagram of the project, explaining the inputs and outputs of your system. Also mention where your project fits into the overall solution.

### C. Organization of the Paper

Explain how you have organized the rest of the report.

## II. PROPOSED SOLUTION

Provide the system-level block diagram of your solution and identify the main hardware and software components. Explain your assumptions on the inputs and outputs of the system. For example, what is the assumption on the input data format, output data format, etc. What are some constraints that you had to factor into your design, such as cost/weight/form-factor, etc. Focus on the importance of the analog sub-system in your design and explain its design.

## III IMPLEMENTATION

### A. Hardware Implementation

Explain your hardware design, using suitable schematic diagram that shows the integrated circuits you have used. Explain why you selected the different ICs. You may include an explanation of the challenges you faced in realizing the hardware. Do not show details of PCB design in this section – you may include this in APPENDIX A. Similarly, include the bill of materials in APPENDIX C. Include a figure that shows a picture of the finished product – explain what hardware you designed as part of this project, including any PCB design you may have carried out.

### B. Software Implementation

Explain your software implementation using flow charts or pseudocode. Do not include any code in this section; please show the code in APPENDIX B.

#### IV. RESULTS

Include the results of your hardware and software testing. Include simulation results, screen grabs, graphs, bode plots, etc. Write down your observations. Feel free to include tables/figures/graphs. If you have worked with a hospital or other organization and have performed field trials, include the details of these trials.

#### V. CONCLUSIONS

Explain what was achieved in the project as compared to the goal of the project. Explain the strengths and limitations of the project. Explain the future scope of the project.

#### ACKNOWLEDGMENTS

Thank all those who have helped during your project.

#### REFERENCES

- [1] A.N. Author. Title of the paper. Journal of Innovation. Vol 3, No. 2. 2011.
- [2] M.Y. Favorite Author. Title of the paper. Available from Internet. URL. 2013.
- [3] A.N. Other Author et al. Title of their paper. Conference Title. 2012.

**Comment [CA1]:** List references in IEEE format. Ensure that you provide all details for each reference, such as the names of the authors, title of the paper/report, source of the publication, year of publication, etc. Sort the references on the last names of the first authors.

#### APPENDIX A

If you wish to provide any details of a PCB design that you have carried out, include them here.

#### APPENDIX B

Include the software code with comments.

#### APPENDIX C – BILL OF MATERIALS

Give a table which shows the name of the hardware/software component, number of components in the project, cost per component, whether the component is a TI/non-TI component, total cost of the component, and the total cost of all components.

	Component	Manufacturer	Cost per component	Quantity	Total cost of component	TI Supplied/ Purchased
1						
2						
3						
4						
Total Cost of the Project						