

INSTITUTO TECNOLÓGICO DE COSTA RICA  
ÁREA ACADÉMICA DE INGENIERÍA EN COMPUTADORES  
PROYECTO DE DISEÑO EN INGENIERÍA EN COMPUTADORES



## **Progress report #1 for the project: Design of (ASIPs) for Approximate Computing**

Chair for Embedded Systems (CES)  
Karlsruhe Institute of Technology (KIT)  
Period: 19/02/2018 (week 2) - 02/03/2018 (week 4)

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# 1 Performed activities

1. **Get to know the software platform:** Several laboratory scripts have been followed to get to know the software tools from which the ASIPs are going to be built. These laboratory scripts consist of several exercises and questions (an answer sheet is available for comparison) to get a student through all the necessary knowledge for building ASIPs, from the basics of an assembly program to an audio application which needs to be optimized. However, this activity was affected by server errors like permissions and general configuration of the environment. The corresponding laboratory sessions made for this task are not completely finished, it is nevertheless expected to work on the sessions on parallel to the activity ID 02, because they do not depend on each other, and the main concepts have been already learned from the currently done laboratory sessions.
2. **Find appropriate error-tolerant applications:** General possible applications have been discussed.
3. **Redact Project Plan document:** The project plan document was revised and corrected according to the professor's observations.
4. **Redact Requirements document:** The requirements document was redacted and sent to the professor for his possible pre-review.
5. **Redact Design document:** The design document was redacted and sent to the professor for his possible pre-review.

# 2 Change of scope

Since the project is still on its initial phase, no change of scope has been made.

# 3 Gained value analysis

Table 1 summarizes the gained value analysis.

# 4 Encountered difficulties

As explained in section 1, several issues have been encountered when executing the laboratory sessions for the activity 01. The time-zone difference between Costa Rica and Germany has slowed down the solutions to these problems, because no matter how small a problem is (in terms of time required to solve it) a solution comes, at least until the next day.

Table 1: Revision History

Activity ID	Activity	Budget	%Planned Value	PV	AC	%Completed work	EV	CPI	SPI	Initial planned date	Ending date	Initial real date	Real ending
01	Get to know the software platform	32	100%	32	25	80%	25,6	1,02	0.8	Week 1	Week 3	Week 1	-
02	Find appropriate error-tolerant applications	32	33%	10,56	2	10%	3,2	1,6	0.3	Week 4	Week 7	Week 4	-
04	Redact Project Plan document	8	100%	8	10	100%	8	0,8	1	Week 1	Week 2	Week 1	Week 3
05	Redact Requirements document	8	100%	8	6	100%	8	1,33	1	Week 2	Week 3	Week 2	Week 4
06	Redact Design document	8	100%	8	7	90%	7,2	1,14	0,9	Week 3	Week 4	Week 3	-

## 5 Hard skills required/acquired

Knowledge in the following software frameworks has been acquired: ASIPMeister, Dlxsim and ModelSim.

## 6 Soft skills required/acquired

The following soft skills have been exercised:

- Communication: Weekly remote communication has been performed with Jorge Castro for the guidance of this project, and with Sajjad Hussain to request technical aid in the server. With both, swift communication was achieved, each topic that was talked was resolved or clarified in very few messages (one or two at most).
- Self-Motivation: Given that there is no direct round-the-clock supervision, self-motivation has been key in working continuously in the laboratory sessions.
- Problem Solving: The laboratory sessions provide several challenges given the theoretical aspects of assembly instructions and processor structure, which need to be addressed and later compared with a given solution.

## 7 Learned lessons

1. Special care has to be taken when working with people around the world. Time-zones restrict the options of when a meeting can happen and limit how fast a response can be obtained.

2. When customizing ASIP configurations, special directory structure is needed for the corresponding scripts and software platform in general to work properly. This structure also helps make development of the laboratory sessions more efficient.

## **References**