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)
Kalrsruhe Institute of Technology (KIT)
Period: 19/02/2018 (week 2) - 23/02/2018 (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. However, some server errors have slowed down the process which means there will be a little change in the schedule, as explained in section 2. These laboratory scripts consist of several excercises 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.
2. **Find appropiate error-tolerant applications**:
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 is currently being redacted and it is expected to be delivered to the professor on friday to obtain a possible pre-review.

2 Change of scope/activities

The activity ID *01* "Get to know the software platform" 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.

3 Gained value analysis

Table 1 summarizes the gained value analysis.

4 Encountered difficulties

As explained in section 2, 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	1,024	0.8	Week 1	Week 2	Week 1	Week 3
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	5	100%	8	1,6	1	Fecha inicio planeada	Finalización planeada	Fecha inicio real	Finalización real
06	Redact Design document	100,000	50%	PV	AC	%Trabajo completado	EV	CPI	SPI	Fecha inicio planeada	Finalización planeada	Fecha inicio real	Finalización real

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 excercised:

- 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 continously 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