

Software Project Management Plan

Child Sponsorship and Analytics for AMG Guatemala

To be submitted to the Department of Mathematics and Computer Science
Gordon College
in partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science

by

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Revision date: December 17th, 2015

Document accepted on October 21st, 2015 by _____

Document accepted on _____ by _____

1. Overview

With the 2011 - 2015 five year plan complete, Advancing the Ministries of the Gospel (AMG) Guatemala, a Christian non-profit based in the country of Guatemala, begins a new five year marathon focusing on utilizing local resources. Among the many ideas for leveraging Guatemalan resources, none is more ready for implementation than providing child sponsorship through AMG Guatemala instead of through the larger group, AMG International. Right now, child sponsorship is only available to English speaking, domestic donors through AMG Guatemala's parent group, AMG International. This will allow native Guatemalans to support children in their own country, instead of having the support entirely outsourced to donors outside of Guatemala.

Our client and contact is Brian Dennett, President of AMG Guatemala. Brian is in charge of all aspects of the Guatemalan division of AMG, a worldwide company operating in 30 countries around the world. With the inherent need of a formal problem statement on this new five year plan, Brian and his team have written a summary of the issues.

AMG's plan for the next five years (2016-2020) revolves around going deeper not wider. We have an excellent ministry model in the Bridge to Life, an excellent staff, presence in 30 key communities of the country and strong partnerships with relevant and like-minded organizations, and of course, the local church. We want to be sure that there is a high level of quality and results within all of our interventions before continuing a grow wider plan in the future. An important part of our long-term sustainability will be to leverage the resources already here in Guatemala, the private sector, organizations and individuals that should be helping in the development of their own country. We will maintain and attempt to grow our international funding base, while focusing intently on mobilizing Guatemalans to serve with their time, talents and treasures. AMG has operated a child sponsorship program for years and has thousands of child sponsors in the U.S, Canada and Europe. It is time for Guatemalans to have the opportunity to sponsor children as well. We hope to offer them that chance in 2016 and beyond. Therefore, we need a database system that will offer us the ability to present children for sponsorship to the population of Guatemala. We have several awareness campaigns planned in the next five years that will inspire Guatemalans to become more philanthropic and we have solid relationships with churches and the Christian media in Guatemala in order to promote. Among the opportunities they will have to participate, we hope that sponsorship will be at the forefront! We have registered the domain "miniño.org" and "yolevoyaguate.com" and hope to direct potential givers to that site in order to select children by age, gender, location, etc... for sponsorship.

As we build this new child sponsorship component, we expect there to be several potential risks involved with the development of this system. The first and potentially most damaging of these risks is the difficulty in developing communication and collaboration across teams that is both blatantly clear and strictly concise. Because we will need to bridge geographic, language, and cultural gaps with our client organization

and their contacts, frequent communication will play a vital role in the success of our system.

The second possible risk will be handling financial transactions, because we will have to collect, and maintain secure financial transactions without any room for error. This will require us to securely communicate with bank APIs while dealing with any infrastructure challenges that Guatemala presents. No financial data will be stored by our system, as previously stated above it will be collected, packaged, and sent securely to AMG Guatemala's financial transaction vendor. Because we are not storing the data, any risks involved with this are avoided with the development of our system, but we will still need to maintain the integrity of AMG Guatemala's donor information when our system does come in contact with this critical data.

1.1 Project summary

Our primary objective is to provide child sponsorship functionality to AMG International's website and provide local Guatemalan donors the opportunity to support children in their own country. In order to do this, we will need to establish a reliable and secure system for handling donations from local Guatemalans to AMG Guatemala and establish a database in Guatemala to store all the relevant information for AMG Guatemala's aid work. Finally, we will need to provide AMG Guatemala with reports based on computed analytics with data from children currently within the organization.

1.2 Evolution of the plan

This section will be updated throughout the project to keep track of changes made to the development plan.

2. References

Brian Dennett - President of AMG Guatemala, project sponsor

Alex Orellana - Technical Director for AMG Guatemala

Carlos Rios - Web Developer located in Guatemala who developed AMG Guatemala's Spanish website

Russ Tuck - School Advisor and Consulting Professor.

3. Definitions

AMG Guatemala - division of AMG International which focuses specifically on missions in Guatemala.

AMG International - parent non-profit of AMG Guatemala encompassing all of the countries that AMG supports.

Banco G&T - Bank supporting AMG Guatemala's finances

Banco Rendimiento - Online financial transaction service AMG Guatemala would like to leverage for managing online donor payments

GoDaddy - DNS registry that AMG Guatemala currently uses for managing their web infrastructure

MongoDB - NoSQL document database that will be used for storing child and sponsor information

Node.js - an open source, cross platform runtime environment for developing server side web applications

Woord en Daad - Dutch, Christian, non-profit organization both sponsoring children and providing databases that AMG Guatemala uses currently to store child, school, and donor information

4. Project organization

4.1 External interfaces

Our client is located in Guatemala City, Guatemala. Most employees of our client organization speak Spanish, which will present a number of communication issues. We plan to travel to Guatemala to meet with the team there, once at the beginning of the project to help us acquire the information we need to start working, and once at the end to help them implement our changes. Outside of these trips we will be communicating primarily through email and occasionally through skype or over the phone.

4.2 Internal structure

Our team is composed of three individuals, Josh Richard, Jake Buettner, and Dane Vanden Berg all of whom will split the labor equally.

4.3 Roles and responsibilities

Joshua Richard, Lead Developer. Conduct team meetings, manage communication with the client, and unblock the team from anything getting in the way of the development of the system. Lead meetings and design the infrastructure stack with the team. Additionally, create an environment for continuous automated testing.

Jacob Buettner, Front End Developer. Create, Manage, and Complete tasks towards the top of the stack. In addition to managing the development of the front end, building and running test jobs with our continuous integration server will be a main responsibility. Lastly, manage the analytics aspect of our system once the child sponsorship functionality is completed.

Dane Vanden Berg, Back End and Investigative Developer. Lead team on building the infrastructure to support child donation functionality and conduct preliminary investigative research on open source tools available for creating financial transactions within the country of Guatemala.

5. Managerial process plans

5.1 Start-up plan

- 1) Establish a project budget: Travel expenses, private GitHub accounts, payment handling companies, server to host test environment.
- 2) Establish a timeline for achieving our goals and answering key questions

5.2 Work plan

This project began development with a proposal on October 12, 2015. We plan to terminate the project April 25, 2015. Participants of the project are expected to spend 4-7 hours a week working on the project.

Description of Task	Estimated Date of Completion
Fulfill requirements of start-up plan.	Nov. 1st, 2015
Set up a local test environment.	Nov. 15th, 2015
Get API calls performing CRUD operations on a test database.	Nov. 22th, 2015
Final 1st semester project documentation	Dec. 16th, 2015
Working prototype of donor workflow without finances	Jan. 18th, 2016
Implement financial transactions	Jan. 31st, 2016
Testing with mocked data	Feb. 15th, 2016
Test controlled, minimal sponsorship transactions with real data	Feb. 28th, 2016
Finish rollout	March 30th, 2016

5.3 Control plan

When changes are to be made to the requirements the changes will be brought to the attention of the project team and discussed. Once changes are accepted by the project team the client will be notified if appropriate.

5.4 Risk management plan

Mismanagement of Donations:

Our most serious risk is mismanaging the donation that come in from Guatemala. To minimize this risk we will be using a transaction service provided by Banco Rendimento.

Mismanagement of Information:

AMG Guatemala store sensitive information the children they support, the schools they run, and the donors they are supported by. Any loss of information could seriously hurt AMG Guatemala and the people they work with. While the work we will be doing does not directly affect information security, privacy will factor into the design of our website and analytics. To minimize this risk we will work closely with the team in Guatemala to ensure all of the work is done to the standards they require.

Poor Communication:

Communication will be difficult between our English speaking team and AMG Guatemala's Spanish speaking team. This coupled with the both teams being located in different time-zones will make communication difficult. To ensure good communication at the start of this project, our Gordon team will be traveling to Guatemala to meet with the Guatemala team in person. After that initial meeting the Gordon team will send weekly communication to the Guatemalan team updating them on new progress and relay any question that arose during that week.

Privacy:

The privacy of the donors and the children AMG Guatemala supports is important. Strict permission sets and roles are critical to a secure system especially since the Database will be accessible over the internet. Strong passwords are obviously important here, and the viability of requiring a certain level of password strength by users will be explored throughout the development of our system.

5.5 Closeout plan

After implementing the system in our second trip to Guatemala, we'll hopefully then be able to pass it off to the currently in place technical team for maintenance. Our system will likely have to be installed on the same server as the database.

6. Technical process plans

6.1 Process model

Waterfall Development

6.2 Methods, tools, and techniques

Docker, Jenkins, GitHub, and a linter for strict code stylings. GoDaddy will be used for providing web services for our system. MongoDB is the database we have decided on after examining the use cases with our client, and Node.js is the runtime framework for our server.

6.3 Infrastructure plan

We will be using the services currently in place at AMG Guatemala in our development. These services include GoDaddy, Banco Rendimento, and Banco G&T.

6.4 Product acceptance plan

The product will be presented to our client after all of the milestones have been completed for review.

7. Supporting process plans

7.1 Configuration management plan

We will be using GitHub as our configuration manager.

7.2 Verification and Validation Plan

- 1) Test partial functionality on mock data
- 2) Test partial functionality on real data
- 3) Test full functionality on mock data
- 4) Test full functionality on real data

7.3 Documentation plan

All of our code will be commented according to accepted standards. Furthermore, we will create documentation for the overall project which will outline the general functionality of the project. It is likely that there will not be much user documentation. The donor workflow will be strictly intuitive, and although this will not be a replacement for user documentation, it will help. Maintenance and additional functionality can and will likely be added, and As previously stated, there will however need to be adequate documentation for those developers tasked with building off of and maintaining the system that we develop for AMG.

7.4 Quality assurance plan

Consistent feedback from our client will help solve quality concerns throughout the development of the system. Communication through email and access to our codebase on GitHub will allow for prolonged transparency and visibility with our client.

7.5 Reviews and audits

Each implementation milestone will be presented to our client for them to review and provide feedback. Any changes requested by the client will then be made as described in section 7.6.

7.6 Problem resolution plan

Require dated meetings in order to establish firm corrections where appropriate.

7.7 Subcontractor management plan

We would like to utilize a payment processing company to handle the donations from local Guatemalans. We will research potential companies to fulfill this role, taking into consideration cost, ease of use, support, and the regions they operate in, although it seems as if AMG Guatemala would like to leverage Banco Rendimento's services. It would be ideal if the payment processing company operates in both the US and Guatemala, but at the end of the day the company we will choose ultimately depends on our budget.

7.8 Process improvement plan

Minimal improvements will likely need to be made by our team after an initial rollout period ends, and any additional improvements in performance and functionality will need to be taken on by the AMG Guatemala technical team after this initial rollout period.

8. Additional plans

We hope is to be as flexible as possible in order to ensure a satisfying conclusion to this project. That being said, we are prepared to construct and implement a secondary plan if some event prevents us from finishing our tasks.