PORTAL FOR FEEDING PROGRAMS

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Abstract: Generation through generation, hunger has become a grave problem around the world. The United Nations' Millennium Development Goals for 2015 indicated on top of the list, the goal to end world hunger. Decreasing the number of undernourished by half is one of the specifics to attain the goal. Addressing Malnutrition, hunger's most widespread manifestation, is key to achieving this goal. Malnutrition has been causing the majority of deaths and sicknesses to undernourished children. San Juan City, Philippines is among the cities having the highest prevalence of undernutrition among preschoolers. Annual feeding programs are being conducted within the Municipality of San Juan to alleviate the case of malnutrition among children. The main problem within the feeding program was the lack of information amongst the feeding organization and stakeholders, leading to inefficiency in the processes conducted for feeding programs. The main objective to resolve this issue was "To develop a web portal that enables management of feeding programs and exchange information between the local government, feeding organization and individual or groups (NGOs) sponsors, while allowing the general public to donate/sponsor programs and educate about nutrition." The Rapid Application Development (RAD) as the software development methodology supported with theories and models such as the Donation Model and Electronic Library was used by the proponents. According to the feedback gained from the stakeholders User Acceptance Test (UAT), the system is a solution to the problems stated and also includes new features and reports that could improve future decision processes of the involved entities when it comes to the feeding program. Despite the scope, other features, modules, and systems may be still be integrated to the current system to increase the impact and benefits that can only be attained through ICT such as budgeting module, Volunteer Management System (VMS), and mobile surveying/Mobile Community Profiling.

Key Words: Malnutrition; Feeding Programs; Information Systems; Portal;

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1. INTRODUCTION

One in every seven people in the world is experiencing hunger, moreover hunger ranks as the number one threat to people's health around the world; it even outweighs the number of people being killed by AIDS, malaria, and tuberculosis altogether. There are even more people who suffer from hunger reaching an estimate of 925 million compared to the total population of the US, Canada, and the European Union which is only 841 million (World Food Programme, n.d). Fighting world hunger continues to be one of the major challenges that the world is facing. The Millennium Development Goal 1 (MDG 1) aims to eradicate extreme poverty and hunger, among the important target goals within the context of MDG 1 is to decrease by half the proportion of hungry people in the world by 2015 (United Nations, 2010).

In the Philippines, one out of five, 0-5 years old children is said to be suffering from hunger (FNRI, 2008). Anthropometrics survey is the assessment of a person's nutritional status based on his or her growth measures like weight and height, and based on the body composition that measures the body fat from waist and hip circumference measurement. These indicators will determine if the person is underweight, underheight,toothin,overweight, and/or obese. This survey is based on the World Health Organization - Child Growth Standards (WHO - CGS) that was strengthen by the Nation Nutrition Council (NNC) here in the Philippines. The Food Nutrition Research Institute of the Department of Science and Technology (FNRI - DOST) had focused on the children 0 -5 years old based the anthropometric survey.

One of hunger's most common manifestations is malnutrition, specifically undernutrition or undernourishment. Malnutrition, according to the World FoodProgramme is defined as, "a state in which the physical function of an individual is impaired to the point where he or she can no longer maintain natural bodily capacities such as growth, pregnancy, lactation, learning abilities, physical work and resisting and recovering from disease." (World Food Programme, n.d.) In 2000-2003, 53% of 10.6 million yearly deaths of children below five involved undernutrition as it was seen as the underlying cause (World Hunger, 2011). Undernourishment, as defined by the World Food Programme, "is used to describe the status of people whose food intake does not include enough calories (energy) to meet minimum physiological needs for an active life." (World Food Programme, n.d.) The Food and Agriculture Organization of the United Nations (FAO) has estimated that there are a total of 925 million undernourished people in the world and it is also estimated that in every six seconds, a child dies due to undernourishment related problems (World Food Programme, n.d.; Food and Agriculture Organization of the United Nations, 2010).

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With the data and information gathered from different research cases and test beds: San Juan Municipal, NGOs, and several barangays, the proponents have identified the main problem as the "lack of information amongst the feeding organization and stakeholders, leading to inefficiency of the process."

The main objective of this research is to develop a web portal that enables management of feeding programs and exchange information between the local government, feeding organization and individual or groups (NGOs) sponsors, while allowing the general public to donate/sponsor programs and educate about nutrition.

After an intensive research, the group had discovered that one of the Millennium Development Goals is to eradicate extreme poverty and hunger, which led the group to decide on the topic on malnutrition. The group will be focusing on the information regarding the annual feeding program conducted in the municipality of San Juan, the involved entities, and the vertical portal regarding nutrition education. The municipality of San Juan will be the test bed of the study.

2. METHODOLOGY

Rapid Application Development (RAD) has been a driving factor in reducing the amount of error along the process as well as reducing the amount of data loss. The most successful and relevant IT tool business practice today is RAD as it takes advantage of automated tools and techniques in order to restructure existing processes (Case Maker Inc., 2000).

The concept of RAD involves a four-stage life cycle including: (1) Requirements Planning Phase, (2) User Design Phase, (3) Construction Phase, and (4) Cutover Phase. With these phases, RAD has been considered to be parallel to that of the traditional SDLC stages, also serving to be a complete methodology (Shelly, Cashman & Rosenblatt, 2009).

The proponents agreed to use RAD as its application development paradigm on the grounds that:

1. This methodology would make the system easier to use and understand, as it would utilize the comments, suggestions, and feedbacks coming from the users involved.
2. This methodology is needed to ensure that the system will satisfy the needs and

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requirements of the users through continuous user involvement.

3.   This methodology is faster in terms of lessening the chance of delays since errors are found by the users at an early stage.

4.   This methodology would allow systems to be developed quickly and at the same time, save costs and improve user satisfaction.

3.   RESULTS AND DISCUSSION

Through online research and analysis of the data gathered from the Municipal Nutrition Officer, NGOs, and several Barangay Nutrition Scholars (BNS) in San Juan, the proponents have identified the main problem relating to the feeding program which is "lack of information amongst the feeding organization and stakeholders, leading to inefficiency of the process." Under the given main problem are the three identified sub problems namely, the limited availability of information processing for decision-making process, the local government is not able to collect sufficient data from feeding organization and concepts are used interchangeably, which leads to confusions in definitions.

To address these problems the proponents created a new system called the "Programs Portal for Feeding Programs". This system is a vertical portal on feeding program where it is open to different types of users namely: the Municipal Nutrition Officer, the BNS, the Sponsors or NGOs, and the public. It is also composed of six main modules which are: 1) Community Profiling, 2) Resource Allocation, 3) Data Analysis, 4) Reporting, 5) Monitoring Feedback System, and 6) E-library.

First of all, the Community Profiling Module involves data gathering from the communities. It includes managing and sorting records of the community, identification of potential beneficiaries through the utilization of anthropometric indicators and recommending target community base on prevalence rate.

Second, the Resource Allocation Module involves recording resources from different entities and allocating these resources accordingly. It includes confirmation of donations and data analysis of the target communities.

Third, the Data Analysis Module involves assisting analysis of data inputs and providing recommendations in decision-making processes. It includes providing updates of the progress of the feeding program and involved beneficiaries and also generation of both quantitative and qualitative reports.

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Fourth, the Reporting Module involves producing and detailed reports concerning the feeding program and the beneficiaries including the community. This includes forwarding the reports to the corresponding local government, which helps in monitoring and tracking of the programs of the organization and the overall performance of stakeholders in the program.

Fifth, the Monitoring Feedback System Module involves monitoring of both beneficiaries of the program and the overall performance of the feeding program. This includes updating involved entities about the performance of their program and their target community, which assists in identifying issues and possible opportunities for improvement on the feeding program.

Lastly, the E-library mode involves addressing the overall problem of lack of knowledge towards nutrition. It includes educational terminologies or concepts related to nutrition.

4. CONCLUSIONS

After determining several problems, the group had to collaborate and decide on the objectives of the team. These objectives would serve as the goals for the group to reach before the given deadline. In addition, these objectives would also guide the group in decision-making and which alternatives to pursue.

To fully maximize the functionalities that the proposed system entails, the group implemented features namely: calculation of nutritional status, filtering of eligible beneficiaries of the program, generation and online submission of reports, and provision of nutritional terminologies and concepts as previously mentioned, to solve the problems like limited information, inaccuracy and inconsistency of data recorded.

The group had designed the system that allows involved users to have easier access to information. Through the system, individuals can submit forms to other entities and at the same time exchange other information such as comments and suggestions.

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Also, the system eliminates the redundancy of writing the same data all over again. The system lessens errors from occurring as it controls the data that will also be used by the other forms.

New features and systems may still be integrated with the current system to increase the impact and benefits that can only be attained through ICT. An additional budgeting feature can be helpful in handling the monetary donations given by the sponsors. Future IT developers can further enhance the system by adding a scheduling module for the organization of planning precise activities so that the nutrition officers and barangay scholars would have synchronized meetings. A Volunteer Management System (VMS) would also be beneficial for the enormous amount of volunteers and for the program itself because the expense of hiring would be minimized and there would be a proper management of manpower. Last but not the least, Mobile Surveying or Mobile Community Profiling techniques can also be done to improve the speed and time of gathering data (e.g. Weight, Height) from the community.

The developers may also opt to expand the scope of the system by including other nutrition-related modules handled by the government such as breast feeding, micronutrient supplementation, community food production, nutrition education, and other food assistance programs.

To add on, the developers should ensure that the involved users who are going to handle the system are knowledgeable about the processes, system flow, and system functions; thus, it is best if proper training is done before allowing the actual implementation of systems to take place.

5. ACKNOWLEDGEMENTS

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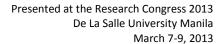accommodating the group on the study being tackled and for the time they had provided for their interviews.

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