A Major Project Proposal Report on

**Swasthya-Pala; A Meal Planner Mobile Application for Diabetics Specific to Nepal**

Submitted in Partial Fulfillment of the Requirements for

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**ABSTRACT**

Diabetics is growing at an alarming rate, worldwide and in Nepal too. Nepal is currently adapting to a busy and unmanaged urban lifestyle due to which obesity and metabolic syndrome are on rise, which are the major cause of Diabetes. As Diabetes is a lifestyle disease, it can be reversed too, given that we make our consumption conscious and lifestyle a bit more organised. There are many people today, even at the age of 25-30 suffering from diabetes or pre-diabetes, who doesn’t surely want to go for medication as a simple tweak in their eating habits can reverse their condition. Eating the right food, at the right time, and in the right quantity is in itself a challenging task.The challenge is even more sound when it comes to track what we have eaten to control our eating pattern in the future and make safer food choices.

In order to solve this problem we have proposed a solution with a mobile application which can plan a meal for a person according to their nutritional requirement,preference and allergic condition. Also it helps track their blood glucose level to adjust their future meal accordingly. After a certain period of tracking the meal and BG level, the application can also predict the possible BG level at a given time using a linear regression model, which can be a possible replacement for Glucometer in the long run.

**1. INTRODUCTION**

Diabetes is a major challenge to overcome today, thanks to the unmanaged and busy urban lifestyle. Although the causes of diabetes(type-2) are still uncertain, It is believed that it is caused mainly by unhealthy eating habits and sedentary activity and can be reversed with a simple tweak in our lifestyle.

Swasthya-Pala tries to solve this growing issue by providing solutions to diabetics where the system plans what they are going to eat in the day considering their nutritional needs, preferences, eating time, and allergic condition. Our system also provides the flexibility for people to add their own food menu satisfying the criteria set by the experts which the system can use to plan meals.

It is equally important for diabetics to track their Blood Glucose (BG) history to adjust their meal accordingly, our system provides meal adjustment by tweaking meals with different GI levels.

Measuring BG level with Glucometer might not always be feasible, As people start using our system and data is collected for certain time about their eating history we can predict their probable BG level at a given point of time. The system will use a linear regression model to predict the probable BG level for a person and warn the user accordingly before any meal time.

**2. PROBLEM STATEMENT**

Diabetes prevalence has been rapidly rising especially in low and middle income countries like Nepal. Due to the sedentary lifestyle of people living in urban areas, overweight and obesity is on rise which is a major cause for type-2 diabetes. According to Nepal Diabetes Association(NDA) diabetes affects 15% people of age more than 20 years and 19% of people of more than 40 years of age. According to WHO diabetics worldwide are predicted to reach around 1,238,000 by 2030.

As diabetes is considered a lifestyle disease, a healthy diet and regular exercise can help reverse this condition. Eating mindfully with the knowledge of what we are eating is in itself a very challenging task as it requires in-depth knowledge to know what a food contains and how it affects the condition. Tracking what we have eaten is yet another challenging task diabetics face in their daily life. Similarly no patient is able to adjust their meal according to what their BG level says at the given instant. On the other hand people are forced to use glucometer reading for Blood Glucose, but it’s convenience and availability remains questionable. All these problems require systematic planning which obviously requires knowledge, effort, and most importantly the valuable time.

Because of the busy lifestyle and lack of technical knowledge in the particular field diabetes patients aren’t able to manage their lifestyle better so that the condition can be reversed faster and efficiently and doesn’t result in disaster. As the use of mobile devices has been increasing rapidly by all age groups, providing a personalized diet plan alongside some notifying mechanism for patients to control their eating and exercising habits in hand-held devices might be a useful solution.

**3. PROJECT OBJECTIVES**

* To plan a custom diet for diabetics considering nutritional need.
* To help Diabetics track their blood sugar level and warn them when caution needs to be taken.
* To help Diabetics get their probable blood sugar level information .