

Amalgamation of Health and Nutrition with Technology to innovate Salubrious Technology

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Abstract - With the evolution of technology we are seeing a significant increase in its utilization in daily life applications. We are becoming a generation of tech savvy people by using it in every aspect of our life. People are increasingly using technology but are still not fully aware of their health requirements. With so much information available it is very difficult to recognize which information is useful and suitable for us. And in that unawareness we often end up doing nothing about our health or everything we see on the internet without knowing if it's beneficial for us. This leads to no results or adverse effects. Also due to the lack of time and busy lifestyle we sometimes get ignorant about our health. In an attempt to save time, health and nutrition gets neglected. Technology has the ability to assist people, monitor, control and improve the state of health and wellbeing of people. This paper focuses on the current and future role of technology in health and nutrition. This is done by examining and comparing the current technologies which provide health care solutions. The objective is to analyze the lacking's of these technologies and suggesting new solutions accordingly. Along with the above mentioned objectives, a new proposed technology is also introduced through this paper. The proposed technology is aimed towards providing a one place solution to the various health and nutrition related queries. It is conceptualized in such a way that it can help people monitor and improve their health by proper nutrition guidance. It also aims to provide suitable suggestions based on every individual's lifestyle.

Key Words: Amalgamation¹, Salubrious Technology².

1. INTRODUCTION

As the popular saying goes-“Healthy Mind resides in Healthy Body”, the greater part of us have heard or perused about this and a few people likewise continue saying this to others as well disposed exhortation. In the present quick life, we are for the most part pushed and dashing against time to complete our plan for the day every day. We are busy to the point that we don't motivate time to eat appropriately, do some physical exercise and even rest sufficiently. A large portion of us remain always focused. We are constantly under strain to meet due dates or finish our objectives. We need to accomplish and achieve a considerable measure in the blink of an eye.

As the technology has evolved over the time, mankind is getting benefitted in lot ways. Technology has entered into every aspect our lives, be it education, finance, or even grocery shopping. Healthcare has also finally embraced technology. In the recent years we have seen many technical inventions in the health sector aimed at improving mankind health.

We can see lot of inventions in the form of devices, websites, mobile apps etc. All these may function differently but have the same agenda that is, health management and enhancement. In this paper we will discuss some of the types of inventions in health sector. These inventions have brought forward the concept of Personal Health Assistant.

With the extensive use and availability of mobile devices, health care apps are playing a pivotal role in changing the perspective of health care management. These apps are performing numerous operations which helps people to manage and monitor their health.

Another area is of the invention of physical devices which are designed to keep a track of person's activity and his basic health statistics. These are wearable devices which monitor the changes in the wearer's body during a certain activity. Apart from health these are popularly used to track one's daily activity and maintain a level of fitness and achieve the fitness targets.

Presently there are many websites also which provide a user information about nutrition by taking some details. These websites aim at providing a personalized diet chart for people who look forward to achieve a target weight for themselves.

In this paper we will highlight such type of inventions and compare them for any lacking's. We'll also do a study of these similar inventions to understand what more can be done. We'll discuss about the benefits of these technologies and also suggest some solution for better improvement. Based on that we'll propose a concept which can give a one-step solution for people by combining the features of the studied technologies and by overcoming their lacking's.

The future scope of technology in health and nutrition management is vast. With coming day we will see new problems and new solutions as well. As long as the health and nutrition of people is not compromised, new technologies are welcome.

2. EXISTING TECHNOLOGIES OVERVIEW

- Lose weight without dieting: This is an app which calculates the calories for your meals when you record them. It also recalculates when you record your physical training.

This app is meant only for calorie counting purposes. It will not suggest any plans for your diet neither any physical training plans. It also doesn't consider other factors like BMI ration, body type, any disease like thyroid, which play very important role in weight management.

- Period Tracker Period Calendar Ovulation Tracker:

This is a simple app for getting reminders of when your period is due. It also calculates ovulation calendar which helps in conceiving or birth control.

Apart from these features app provides nothing much. It doesn't consider other factors like PCOS syndrome. It's useful only for those whose cycle are always on time.

- Calorie Counter by FatSecret: Again a calorie counter app in which you need to record your food, exercise and weight. There is also a feature where you connect with a community of similar people to share views and also with health professionals. It syncs with two devices Google Fit and FatSecret Professional.

The good thing is you get to connect with health professional, but that would work only to an extent as you share very less data like food, exercise, and weight. For any health professional to suggest an effective plan they need lot more things.

- 10 Best Foods for You: This is a very basic app which only suggests food for different things like for losing weight, to look healthy, to control diabetes etc. It only suggests so there is no interaction with any professional. Also you have to analyze on your own if the suggested food suits you and your body type.

- HealthifyMe: This is an app which basically is a meal planner like any diary where you just go on entering. Along with that it has calorie counter. It also provides diet plans, gives fitness advice. It syncs with devices like HealthifyMe Rist, YUFIT, Google Fit, Garmin, and Fitbit. It also offers RIA

their AI bot which guides you. But that is available only in paid version.

The good is an AI to guide you but then it is not free. This is a very popular app but is limited to only nutrition. Since it syncs with devices it would have been better if could automatically record activity and guide on fitness level as well.

- Fitbit: This is an app for fitness freaks to help them track their activity. For users to use this app they should have a good understanding of what their body needs and what they should do with all the data that the app has tracked. Apart from that there are no more features for users who are new to the world of fitness.

- Shae: Shae is an under-development application based on crowd funding campaign. It uses another application called ph360 to create a virtual health assistant. It basically plans meals for you based on your workout. It can also order meal for you.

Apart from that we see no interesting feature in this as it doesn't touch many other aspects of health.

3. PROPOSING A SALUBRIOUS TECHNOLOGY

As we have seen in the above study we have mentioned applications and technologies that are currently existing. There are many such similar applications, then question may arise as to why there is a need for a salubrious technology. The reason is that a person will install how many applications in his device, as already our devices are loaded with applications. To create a solution for this we propose a salubrious technology that provides a one-step solution to all things related to health and nutrition. A complete package so that people don't have to depend on multiple applications.



3.1 Introduction:

Imagine a scenario in which there was a solitary arrangement that knows exactly what is best for your body at this exact time in your life. Proposing a Personal Virtual Health Assistant, whose lone intrigue is to keep you sound and glad, constantly! It is intended to dispose of the disarray around wellbeing. Making 'getting solid' and 'remaining sound' straightforward and advantageous. No more mystery for your eating regimen, practice and even way of life. No compelling reason to endeavor to stay aware of the most recent prevailing fashions or endeavoring to design or recollect your sound decisions. The application does the greater part of this for you, from any gadget.

The goal is not to create just an application but a technology which is multiple platform compatible and multiple device compatible.

3.2 Below are some of the features conceptualized:

Health Profile: To get yourself all taken care by the application you just need to provide information about your height, weight, age, gender etc. and also information about any health issues like diabetes, blood pressure or any allergical disease.



HEALTH PROFILE

BMI Calculator: Evaluate your BMI and the application will help you to achieve your ideal BMI ratio.

BODY MASS INDEX (BMI)		
A MEASURE OF BODY FAT IN ADULTS		
WEIGHT	KG	
HEIGHT	CM	BMI

BODY MASS INDEX (BMI)		
A MEASURE OF BODY FAT IN ADULTS		
WEIGHT	49	KG
HEIGHT	180	CM
		15.1
		UNDERWEIGHT BMI

BMI CALCULATOR

Care Provider Locator: Find any health assistant, healthcare provider, nursing home, hospital near you. This will help you when you are alone in times of any emergency and even when you are in a new place.



CARE PROVIDER LOCATOR

Health Encyclopedia: Get any information instantly about health, nutrition, medical conditions, symptoms etc.



HEALTH ENCYCLOPEDIA

Pill Reminder and Identifier: Never miss any dose of your medication with pill reminder. Also store all your prescriptions online and access them from anywhere when you misplace them or when you forget to carry them while travelling. Also a pill identifier which identifies your pill based on color, shape, code etc. within your prescription.



PILL REMINDER

Symptoms Checker: Worried about certain symptoms showing up suddenly? Allow us to help you understand what your medical symptoms means and if you should seek medical attention immediately.



SYMPTOMS CHECKER

Calorie calculator: Energy in food can be measured in calories or kilo joules. This tool can help you convert calories into kilo joules and vice versa. It will also help you to keep the track of your daily calorie intake.



CALORIE CALCULATOR

Period Reminder: The application will notify you with reminders. Along with that it will also give you your ovulation calendar.



PERIOD REMINDER

Baby Care: For all the first time parents, this will help you in every aspect of your newborn's care.



BABY CARE

Personal Nutritionist: The application will suggest you foods which are suitable for you and also which foods are not suitable for you. If you have mentioned any disease or allergy then it will take care of that and suggest you foods accordingly. It will monitor your daily eating habits and your lifestyle and provide you a personalized nutrition plan most suitable for you.



PERSONAL NUTRITIONIST

Fitness Instructor: It will also analyze your data and suggest you what forms of exercises, gym routines or yoga are beneficial for you. According to your choice it will prepare a plan for you and synchronize it with your nutrition intake to give you maximum results.



FITNESS INSTRUCTOR

Travel Companion: If you are planning to go somewhere then it will suggest you food based on the climatic condition of that place and your health. It will make sure you have a healthy time on your vacation as well.



TRAVEL COMPANION

Weather indicator: It will analyze the changes in weather and will suggest you suitable food accordingly. These sudden weather changes affects health this feature can help people tackle the sudden changes in weather.

**WEATHER INDICATOR**

Virtual MD: Get all your health queries answered immediately by the available health professionals. It uses Artificial Intelligence to create a virtual personal health assistant for you like RIA. This continuously tracks your activity and if it notices any sudden changes or any threats to your health it immediately inform you and your health professional. This is the future of AI in health industry. Where you can save lives by acting on time.

**ROBOTICS & VIRTUAL MD**

Heart rate monitor: It will help to improve your health and will also signal any medical problem. It is also useful to know your fitness level.

**HEART RATE MONITOR**

4. CONCLUSION

Overall we can say that this salubrious technology fulfills the different needs of different people. It not only focuses on health and nutrition but also enhances healthy lifestyle and fitness. It completely utilizes the technological advancements for the betterment of people's health. It is proposed for people who want to keep a track on their health but are restricted due to their busy schedule. It makes people aware of their body type, it helps them to understand their body and to improve their health. It helps people overcome any disease or anything they are fighting. It is the best way through which you can monitor your health and also the health of your loved ones.

5. FUTURE ENHANCEMENTS

This application will expand itself to perform more efficiently. In the future it will integrate its working with the wearable devices. Through these devices it will track location and its climate, also it will monitor the physical activity and changes in health. These devices will work to collect data of the users surrounding and user's lifestyle which will help this to make suitable plans for user. It will also warn user for any improper habit or intake of food. Along with that it will coordinate with the user's doctor and periodically send the user's vital data to the doctor. This will help in better monitoring of health and recovery from any disease. This data will help the doctor to give a suitable and effective treatment for the user and also help to keep a check on the user.

With so much of vital data extraction and transmission it becomes important to protect this vital data. For this proper security mechanisms will also implemented such that there is no compromise on any person's health and health information.

This application has wide scope for enhancement. With the advancement in technology it will adapt to these and continue to be a salubrious technology.

**ARTIFICIAL INTELLIGENCE & HEALTHCARE
A.I. SOLVING PROBLEMS**



REFERENCES

- [1] Ernstring C, Dombrowski SU, Oedekoven M, O'Sullivan JL, Kanzler M, Kuhlmeier A, Gellert P Using Smartphones and Health Apps to Change and Manage Health Behaviors: A Population-Based Survey J Med Internet Res 2017; 19(4):e101DOI: 10.2196/jmir.6838PMID: 28381394 PMID: 5399221
- [2] Healthcare in the pocket: Mapping the space of mobile-phone health interventions. Author links open overlay panel: PredragKlasnja^a WandaPratt^{ab}
- [3] Villalba Mora, Elena & Ottaviano, Manuel & Arredondo, Maria & Martinez, A & Guillen, Sarahi. (2006). Wearable monitoring system for heart failure assessment in a mobile environment. Computers in Cardiology. 33. 237 - 240.
- [4] C.C. Tsai, G. Lee, F. Raab, G.J. Norman, T. Sohn, W. Griswold, et al. Usability and feasibility of PmEB: a mobile phone application for monitoring real time caloric balance Mobile Networks Appl., 12 (2-3) (2007), pp. 173-184
- [5] Goal-Setting Considerations for Persuasive Technologies that Encourage Physical Activity Sunny Consolvo^{1,2}, Predrag Klasnja², David W. McDonald², & James A Landay³. <http://www.pensivepuffin.com/dwmcphd/paper/s/Consolvo.et.al.GoalSetting.Persuasive09.pdf>
- [6] Palazuelos D, Diallo AB, Palazuelos L, Carlile N, Payne JD, Franke MF User Perceptions of an mHealth Medicine Dosing Tool for Community Health Workers JMIR Mhealth Uhealth 2013;1(1):e2DOI: 10.2196/mhealth.2459 PMID: 25100670 PMID: 4114471
- [7] Mobile Phone-Based Remote Patient Monitoring System for Management of Hypertension in Diabetic Patients: Alexander G. Logan Warren J. McIsaac Andras Tisler M. Jane Irvine Allison Saunders Andrea Dunai Carlos A. Rizo Denise S. Feig Melinda Hamill Mathieu Trudel Joseph A. Cafazzo. *American Journal of Hypertension*,
- Volume 20, Issue 9, 1 September 2007, Pages 942-948, <https://doi.org/10.1016/j.amjhyper.2007.03.020>
- [8] Lose weight without dieting: <https://play.google.com/store/apps/details?id=ru.harmonicsoft.caloriecounter>
- [9] Period Tracker - Period Calendar Ovulation Tracker: <https://play.google.com/store/apps/details?id=com.popularapp.periodcalendar>
- [10] Calorie Counter by FatSecret: <https://play.google.com/store/apps/details?id=com.fatsecret.android>
- [11] 10 Best Foods for You: <https://play.google.com/store/apps/details?id=com.andromo.dev136619.app203387>
- [12] HealthifyMe: Lose Weight, Nutrition, Diet Plan: <https://play.google.com/store/apps/details?id=com.healthifyme.basic>
- [13] Fitbit: <https://play.google.com/store/apps/details?id=com.fitbit.FitbitMobile>
- [14] Shae: <https://play.google.com/store/apps/details?id=com.ph360.shae>