



# Prevention of Diabetes Mellitus Through the Use of Mobile Technology (mHealth): Case Study

M. Hazzel Guerrero-Flores<sup>1,2,3,4</sup>, Huizilopoztli Luna-García<sup>1</sup>,  
Carlos E. Galván-Tejada<sup>1</sup>, Hamurabi Gamboa-Rosales<sup>1</sup>,  
José M. Celaya-Padilla<sup>2</sup>, Jorge I. Galván-Tejada<sup>1</sup>,  
Alfredo Mendoza-González<sup>2</sup>, Vanessa Alcalá-Román<sup>1</sup>,  
Adan Valladares-Salgado<sup>4</sup>, and Miguel Cruz<sup>5</sup>

<sup>1</sup> Centro de Investigación e Innovación Biomédica e Informática (CIEBI), Universidad Autónoma de Zacatecas, Francisco García Salinas, Jardín Juárez #147, Centro Histórico, 98000 Zacatecas, Zac., Mexico  
{hazzelg, hlugar, ericgalvan, hamurabigr, gatej, vdrur, 06}@quazt.edu.mx

<sup>2</sup> CONACYT, Universidad Autónoma de Zacatecas, Francisco García Salinas, Jardín Juárez #147, Centro Histórico, 98000 Zacatecas, Zac., Mexico  
josee\_celsys@uaz.edu.mx

<sup>3</sup> PRODEP, Centro de Investigación e Innovación Biomédica e Informática (CIEBI), Universidad Autónoma de Zacatecas, Francisco García Salinas, Jardín Juárez #147, Centro Histórico, 98000 Zacatecas, Zac., Mexico  
mendoza\_uzan@gmail.com

<sup>4</sup> Unidad de Investigación Médica en Bioquímica, Hospital de Especialidades, Centro Médico Nacional Siglo XXI, Instituto Mexicano del Seguro Social, Av. Cuauhtémoc 330, Col. Doctores, Del. Cuauhtémoc, 06720 Mexico City, Mexico  
adanval@gmail.com, meruz@yahoo.com

**Abstract.** Currently advances in technology have allowed the development of tools focused on the field of medicine, such as mobile technology applied to health or mHealth, through which it seeks to improve the health and quality of life of people. In 2017 there were more than 200 million downloads in mHealth apps from online app stores, however, likewise, the dropout rate was high due to the problems faced by the users when using those apps. On the other hand, in the field of health, one of the main causes of death in Mexico is diabetes mellitus. Derived from the above, this article presents the design of a mobile application prototype as a support tool in the prevention of this disease, taking as reference the Risk Factors Questionnaire (RFQ). For the development of the prototype, the stages of the User Centered Design (UCD) process were implemented in accordance with the ISO 9241-210:2010. The purpose of the final application, is to provide an easy-to-use tool that provides the user with information about the possible risk of developing diabetes, based on user-provided data and analyzed with artificial intelligence algorithms, also to provide recommendations that impact on the people's lifestyles, as well as providing a list of doctors and