Constructing the Individual's Adoption of AIoT Healthcare Defense Platform

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Wan-I Lee [1,*], Tzu-Huang Chang [2]

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[1]Department of Marketing and Distribution Management National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan
Tel:+886 7 6011000#34201; Fax: +886 7 6011043, * wilee@nkust.edu.tw(corresponding author)
[2]Department of Electronic Engineering National Kaohsiung University of Science and Technology Kaohsiung, TAIWAN, Kaohsiung, Taiwan
[2]a0926271535@gmail.com

Abstract

The superior doctor treats the disease that is not yet sick, the Chinese medicine treats the desired disease, and the inferior physician treats the existing disease. The superior physician treats the disease that is not yet ill, which is called health preservation; the Chinese medicine treats the disease that is desired to be ill, which is called health care; the inferior physician treats the already ill disease., called medical treatment. Based on this proverb's spirit, this research creates an AI (Artificial Intelligence) cloud healthcare and medical defense platform by itself. This platform includes the Internet of Things, Machine Learning modeling, and dynamic demolding comparison units. The content covers the Internet of Things integration platform, big data collection center, big data analysis engine, exclusive health index modeling platform, dynamic monitoring human health index platform, real-time monitoring data providing platform, and health care guidance platform for chronic disease care, in order to achieve home health, care the purpose of eternal health.

Research Methods

We proposed a practical application of a smart Internet of Things technology that can assist with addressing healthcare problems and medical defense, establishing an AI cloud health and medical defense platform, as shown in Figure 1. This integrated platform combines two fundamental concepts: exercise planning and healthy diet management. Additionally, four optional units, namely, a physical therapy maintenance unit, TCM maintenance western medicine precision medicine, Zen spiritual purification, and two big data-providing units, wearable measurement and a hospital visit, will be provided. The IoT unit of the application integration platform, as shown in Figure 2, collects the big data of personal health index to the big data center to facilitate the application of "Machine Learning." Linear and non-linear regression analysis measures are used to establish the user's personal health equation. Finally, the individual's health equation is applied to dynamically compare the physical health status and can assist IoT applications in healthcare. If a debilitating condition is dynamically monitored, the mobile app notifies users of warning signs in their physical condition to achieve the purpose of dynamic health management.
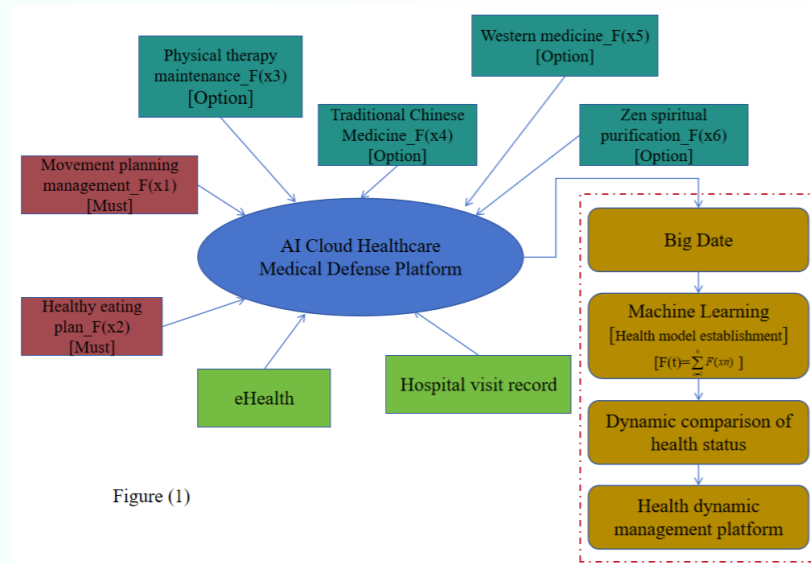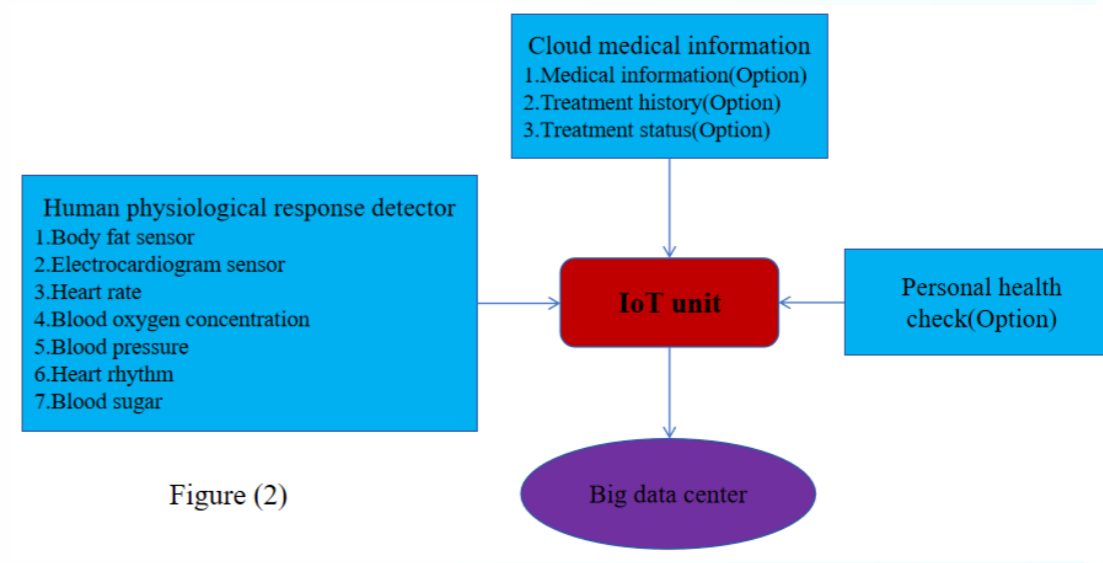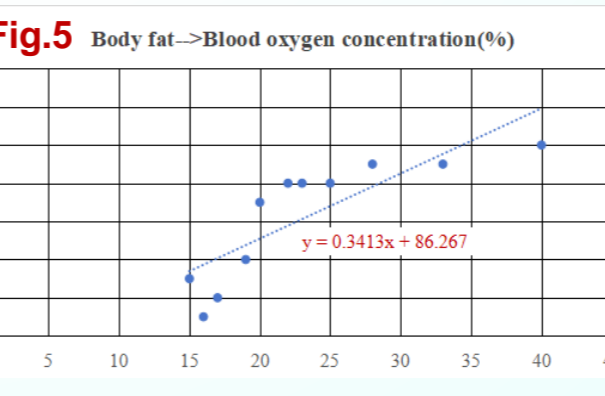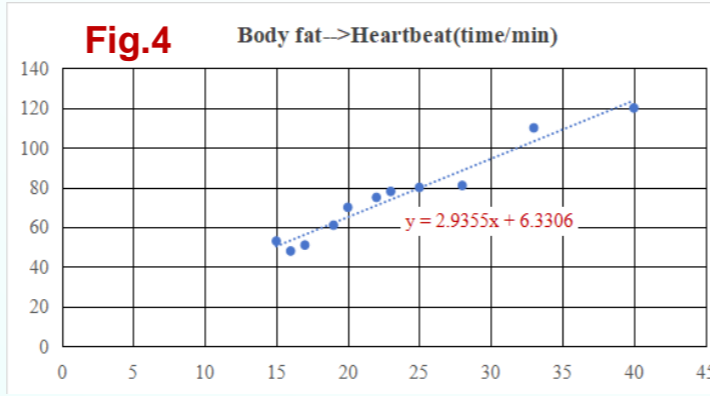

Fig. 1 AI cloud healthcare defense platform

Fig. 2 IoT Healthcare Big Data Collection Architecture

Results and Discussion

Prediction Equation

$f(z1)=f(y1)$ when $23\% \leq f(y1) \leq 25\%$, EKG is normal
when $28\% \leq f(y1) \leq 20\%$, EKG is abnormal..........(1)
$f(z2)=2.935*f(y1)+6.330$.......................................(2)
$f(z3)=0.3413*f(y1)+86.267$...................................(3)
$f(z4)=1*f(y1)+62.069$..(4)
$f(z)=f(z1)+f(z2)+f(z3)+f(z4)+f(z5)$.....................(5)
$f(y1\_1)=0.069*f(Fint)+12.336$.............................(6)
$f(y1\_2)=1.261*f(Aint)+11.714$.............................(7)
$f(y1)=f(y1\_1)+f(y1\_2)$...(8)

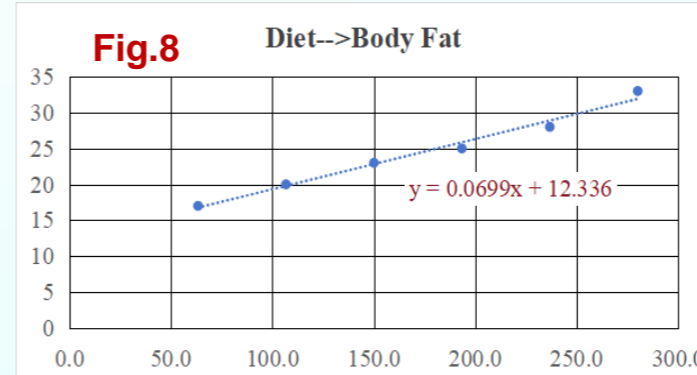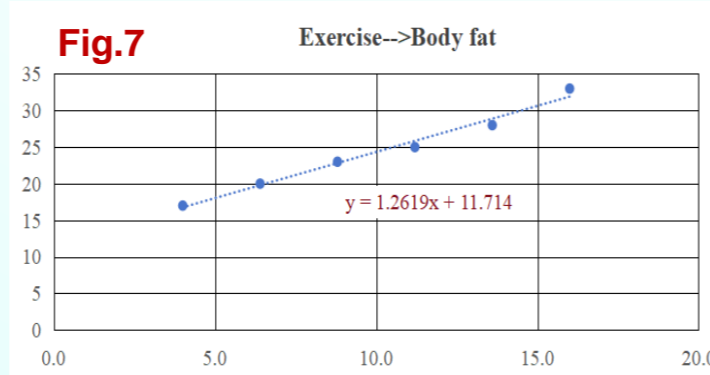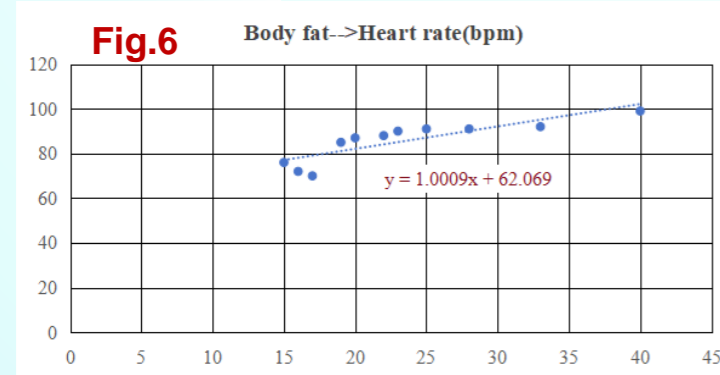Fig. 3 Body fat corresponding to electrocardiogram
Fig. 4 Body fat versus heartbeat linear regression chart
Fig. 5 Linear regression plot of body fat versus blood oxygen concentration
Fig. 6 Linear regression plot of body fat versus heart rate
Fig. 7 Linear correlation plot of exercise versus body fat
Fig. 8 Linear correlation plot of diet versus body fat

Conclusions

In summary, We developed a new AIoT Healthcare medical defense platform that can enhance the capabilities of smart health systems, smart remote monitoring, and associated applications with longer functional life and increased power efficiency.

國立高雄科技大學
National Kaohsiung University of Science and Technology

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