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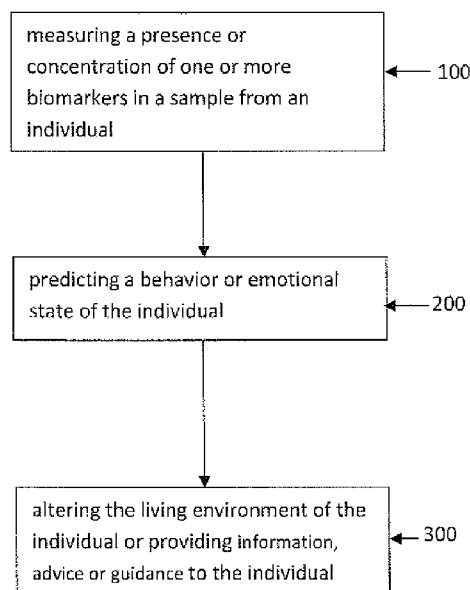
(54) **Title:** METHODS AND SYSTEMS FOR ASSISTING PERSONS, PRODUCT PROVIDERS AND/OR SERVICE PROVIDERS

Figure 1

(57) **Abstract:** A method of assisting daily living for an individual, comprising the steps of measuring a presence and/or concentration of one or more biomarkers in a sample from the individual; predicting a behavior or emotional state of the individual based on the measured presence and/or concentration of the one or more biomarkers by applying a correlation between human biological phenotype and human behavioral and/or emotional phenotype; and altering the living environment of the individual or providing information, advice or guidance to the individual based on the predicted behavior or emotional state of the individual, where the correlation between human biological phenotype and human behavioral and/or emotional phenotype comprises a correlation between the one or more biomarkers and a behavior or emotional state. A system for assisting daily living for an individual is also provided. The present invention is useful for product and service providers and industries for purposes of standardizing or rating product quality and efficacy, and/or for promotion and selling purposes.



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AMENDED CLAIMS

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WHAT IS CLAIMED IS:

1. A method of assisting daily living of an individual, comprising the steps of:
 - measuring a presence and/or concentration of one or more biomarkers in a sample from the individual;
 - predicting a behavior or emotional state of the individual based on the measured presence and/or concentration of the one or more biomarkers by applying a correlation between human biological phenotype and human behavioral and/or emotional phenotype; and
 - altering the living environment of the individual, providing tailored or customized products, services or experiences to the individual, or providing information, advice or guidance to the individual based on the predicted behavior or emotional state of the individual,wherein the correlation between human biological phenotype and human behavioral and/or emotional phenotype comprises a correlation between the one or more biomarkers and a behavior or emotional state.
2. The method of claim 1, wherein the one or more biomarker is selected from the group consisting of polypeptides, polynucleotides, metabolites, microbes, inorganic compounds, and ions.
3. The method of claim 2, wherein the presence or concentration of the one or more biomarkers is measured by using recognition molecules selected from antibodies, antigens, aptamers, natural receptors, synthetic receptors, ligands, enzymes, enzymatic substrates, nuclei acid probes.
4. The method of claim 3, wherein the antibodies are conditionally active antibodies that specifically bind to the one or more biomarkers.
5. The method of claim 1, wherein a plurality of different biomarkers are measured and these measurements of the plurality of different biomarkers are used to in the predicting step.
6. The method of claim 1, wherein the measuring step is carried out using one or more biosensors comprising a transducer selected from optical transducers, mass-based

transducers, magnetic field based transducers, electrochemical transducers, and calorimetric transducers.

7. The method of claim 6, wherein the one or more biosensors comprise two or more different recognition molecules that are specific for two or more different biomarkers.

8. The method of claim 1, wherein the presence or concentration of one or more biomarkers in the sample is measured by one or more electrodes selected from potentiometric electrodes, amperometric electrodes and conductometric electrodes.

9. The method of claim 1, wherein the presence or concentration of one or more biomarkers is measured by an array of recognition molecules selected from antibodies, aptamers, oligonucleotides and combinations thereof.

10. The method of claim 1, wherein the measuring step comprises a passive, recurring measurement, or is made using an undirected method.

11. The method of claim 1, wherein the measuring step further comprises measuring physiological parameter of the individual.

12. The method of claim 11, wherein the physiological parameter is selected from body temperature, pulse rate, blood pressure, respiratory rate, hydration status, electromuscular activity, eye movement and combinations thereof.

13. The method of claim 1, wherein data measured in said measuring step is correlated with time at a location wherein said measurement is made.

14. The method of claim 13, wherein additional data from the location selected from temperature, altitude noise, altitude, wind, humidity, pollution, oxygen, sunshine, pollen, crowd density, concrete, grass, night, day, near highway and traffic density at that time, aircraft flying, cosmic radiation levels, radon exposure, clothing and combinations thereof is measured in said measuring step or is correlated with one or more measurements taken in said measuring step.

15. The method of claim 1, wherein altering the living environment of the individual comprises an alteration selected from adjusting brightness and/or color of lighting, adjusting room temperature, adjusting humidity, rearranging furniture, playing music, adjusting a volume of music or audio, changing a TV channel, playing a recorded voice or sound, changing an appearance of a wall or screen, retracting a roof, opening or closing a window, adjusting oxygen concentration in air, adding or adjusting a scent in air, and introducing one or more air-borne chemicals into air.

16. The method of claim 1, wherein altering the living environment comprises altering one or more of a display and web search results.

17. The method of claim 1, wherein the information, advice or guidance comprises a course of action selected from a course of action for performing the predicted behavior, a course of action for preventing or mitigating the predicted behavior, a course of action for better coping with the predicted emotional state and combinations thereof.

18. The method of claim 17, wherein the course of action comprises an activity selected from the seeking professional counseling, traveling, exercising, relaxing, meeting with a friend, adopting an eating regimen, drinking wine or a beverage, watching a movie, playing a type of video game, shopping, dining, visiting a beach, wearing a type of apparel, wearing a type of hairstyle, talking to a friend, using a dating service, gaming and any combination thereof.

19. The method of claim 1, wherein the information, advice or guidance comprises suggesting one or more products selected from supplements, vitamins, beverages, beauty products, personal care products, weight loss products, skin care products, sports supplements, extracts, probiotics, seasonings, flavors, sweeteners, taste/aroma blockers/modifiers, bulking agents, video games, electronics, reading materials, music, movies, TV programs, live shows, apparel, accessories, footwear, home appliances, exercise equipment, types of food, boats, automobiles, bikes, restaurants, office supplies, furniture, and vacation resorts/destinations.

20. The method of claim 1, wherein the information, advice or guidance comprises suggesting one or more services selected from messaging, financial services, dating services, catering services, home cleaning services, home improvement services, hair dressing services, cosmetic services, professional counseling services, travel services, casino gaming services, shopping services, real estate services, sports-related services, entertainment services, online auction services and hospitality services.

21. The method of claim 1, wherein the information, advice or guidance comprises at least one promotion or coupon for a product or service.

22. The method of claim 1, further comprising the step of suggesting a local business and/or providing a map location of a local business in relation to the information, advice or guidance, wherein the information, advice or guidance involves suggesting a product or a service, and the local business provides the suggested product or service.

23. A system for assisting an individual in daily living, comprising:

- a measuring device for measuring a presence and/or concentration of one or more biomarkers in a sample from the individual;

- a predictor for predicting a behavior or emotional state of the individual based on the measured presence and/or concentration of the one or more biomarkers by applying a correlation between human biological phenotype and human behavioral and/or emotional phenotype;

- a device for altering the living environment of the individual or providing information, advice or guidance to the individual based on the predicted behavior or emotional state of the individual; and

- a database for storing correlations between human biological phenotype and human behavioral and/or emotional phenotype, wherein the correlation between human biological phenotype and human behavioral and/or emotional phenotype comprises a correlation between the one or more biomarkers and a behavior or emotional state.

24. The system of claim 23, wherein the measuring device is implanted in the individual in a location selected from a vascular system, a mouth, a urine passageway a nasal cavity, and a gastrointestinal tract.

25. The system of claim 23, wherein the predictor and the device are part of an electronic device selected from smartphones, tablet computers, notebook computers, e-book readers, mobile internet devices, personal digital assistants, internet phones, holographic devices, holographic phones, cable internet devices, satellite internet devices, internet televisions, digital subscriber line (DSL) internet devices and remote controls.

26. The system of claim 25, wherein the information, advice or guidance is displayed on a screen of the electronic device or broadcasted through a speaker of the electronic device.

27. The system of claim 26, wherein a promotion or coupon is displayed or referenced on a screen of the electronic device.

28. The system of claim 23 further comprising a supplementary measuring device for measuring at least one physiological parameter selected from body temperature, pulse rate, blood pressure, respiratory rate, hydration status, eye movement, electromuscular activity and combinations thereof.

29. The system of claim 23, comprising apparatus for correlating measured presence and/or concentration of biomarkers with time at a location wherein said measurement is made.

30. The system of claim 29, wherein the predictor considers additional data from the location selected from temperature, altitude noise, altitude, wind, humidity, pollution, oxygen, sunshine, pollen, crowd density, concrete, grass, night, day, near highway and traffic density at that time, aircraft flying, cosmic radiation levels, radon exposure, clothing and combinations thereof that are correlated with one or more measurements taken in said measuring step.

31. The system of claim 23, wherein the measuring device comprises one or more biosensors including a transducer selected from optical transducers, mass-based transducers, magnetic field based transducers, electrochemical transducers, and calorimetric transducers.

32. The system of claim 23, wherein the measuring device comprises one or more biosensors including a structure selected from a giant magnetoresistance structure, a nanowire, a microfluidic circuit, a nanotube and a biochip.

33. The system of claim 23, wherein the measuring device comprises one or more electrodes selected from potentiometric electrodes, amperometric electrodes and conductometric electrodes.

34. The system of claim 23, wherein the measuring device comprises an array selected from antibody arrays, aptamer arrays, oligonucleotide arrays and combinations thereof.

35. The system of claim 23, wherein altering the living environment of the individual comprises an alteration selected from adjusting brightness and/or color of lighting, adjusting room temperature, adjusting humidity, rearranging furniture, playing music, adjusting a volume of music or audio, changing a TV channel, playing a recorded voice or sound, changing an appearance of a wall or screen, retracting a roof, opening or closing a window, adjusting oxygen concentration in air, adding or adjusting a scent in air, and introducing one or more air-borne chemicals into air.

36. The system of claim 23, wherein altering the living environment comprises altering one or more of a display and web search results.

37. The system of claim 23, wherein the information, advice or guidance comprises a course of action selected from a course of action for performing the predicted behavior, a course of action for preventing or mitigating the predicted behavior, a course of action for better coping with the predicted emotional state and combinations thereof.

38. The system of claim 23, wherein the course of action comprises an activity selected from the seeking professional counseling, traveling, exercising, relaxing, meeting with a friend, adopting an eating regimen, drinking wine or a beverage, watching a movie, playing a type of video game, shopping, dining, visiting a beach, wearing a type of apparel, wearing a type of hairstyle, talking to a friend, using a dating service, gaming and any combination thereof.

39. The system of claim 23, wherein the information, advice or guidance comprises suggesting one or more products selected from supplements, vitamins, beverages, beauty products, personal care products, weight loss products, skin care products, sports supplements, extracts, probiotics, seasonings, flavors, sweeteners, taste/aroma blockers/modifiers, bulking agents, video games, electronics, reading materials, music, movies, TV programs, live shows, apparel, accessories, footwear, home appliances, exercise equipment, types of food, boats, automobiles, bikes, restaurants, office supplies, furniture, and vacation resorts/destinations.

40. The system of claim 23, wherein the information, advice or guidance comprises suggesting one or more services selected from messaging, financial services, dating services, catering services, home cleaning services, home improvement services, hair dressing services, cosmetic services, professional counseling services, travel services, casino gaming services, shopping services, real estate services, sports-related services, entertainment services, online auction services and hospitality services.

41. The system of claim 23, further comprising apparatus for suggesting a local business and/or providing a map location of a local business in relation to the information, advice or guidance, wherein the information, advice or guidance involves suggesting a product or a service, and the local business provides the suggested product or service.

42. The system of claim 23, implemented using an electronic device selected from smartphones, tablet computers, notebook computers, e-book readers, mobile internet devices, personal digital assistants, internet phones, holographic devices, holographic phones, cable internet devices, satellite internet devices, internet televisions, digital subscriber line (DSL) internet devices and remote controls

43. The system of claim 42, wherein the electronic device is configured for providing a map location of business in relation to the information, advice or guidance, wherein the information, advice or guidance is suggesting a product or a service, and the business provides the product or service.

44. The system of claim 42, wherein the electronic device is configured for obtaining feedback on a suggested product or a service, and the feedback is suitable for being used to rank the product or service, and wherein the information, advice or guidance is suggesting the product or service.

45. The method of claim 1, wherein the presence or concentration of one or more biomarkers in the sample is measured by mass spectrometry.

46. The method of claim 1, wherein a measurement in the measuring step is made using an undirected method, a non-invasive method, a method invisible to the individual, a longitudinal method, a rapid method or in real-time.

47. The method of claim 1, wherein the measuring step is carried out using a personalized shared device.

48. The method of claim 1, wherein the behavior is lifestyle behavior, including one or more of preferences, wellness needs, deviations from wellness, personality traits and/or desires.

49. The method of claim 1, wherein the correlations are used to provide feedback or guidance to the human, to provide information to a product provider or a service provider for use in marketing and/or selling of products and/or services, to provide a product provider or service provider with information useful in grading or rating products or services, or to provide a product provider or service provider with information useful in to design new and/or better products or services.

50. The method of claim 1, wherein more than 10, more than 20, more than 100, more than 1000, or more than 10,000 biomarkers are measured.

52. The method of claim 1, wherein the human biological phenotype includes a ratio between concentrations of two biomarkers.

52. The method of claim 1, wherein the human biological phenotype includes a ratio between a concentration of a biomarker and a concentration of a housekeeping gene product.

53. The system of claim 23, where the database is configured to continue to accept new data selected from the group consisting of data on biological phenotype of the subject, survey-based data on behavioral and/or emotional phenotype, data on map locations, and data on environmental factors.

54. The system of claim 53, where the database is configured to evolve to include at least one new correlation based on the new data.