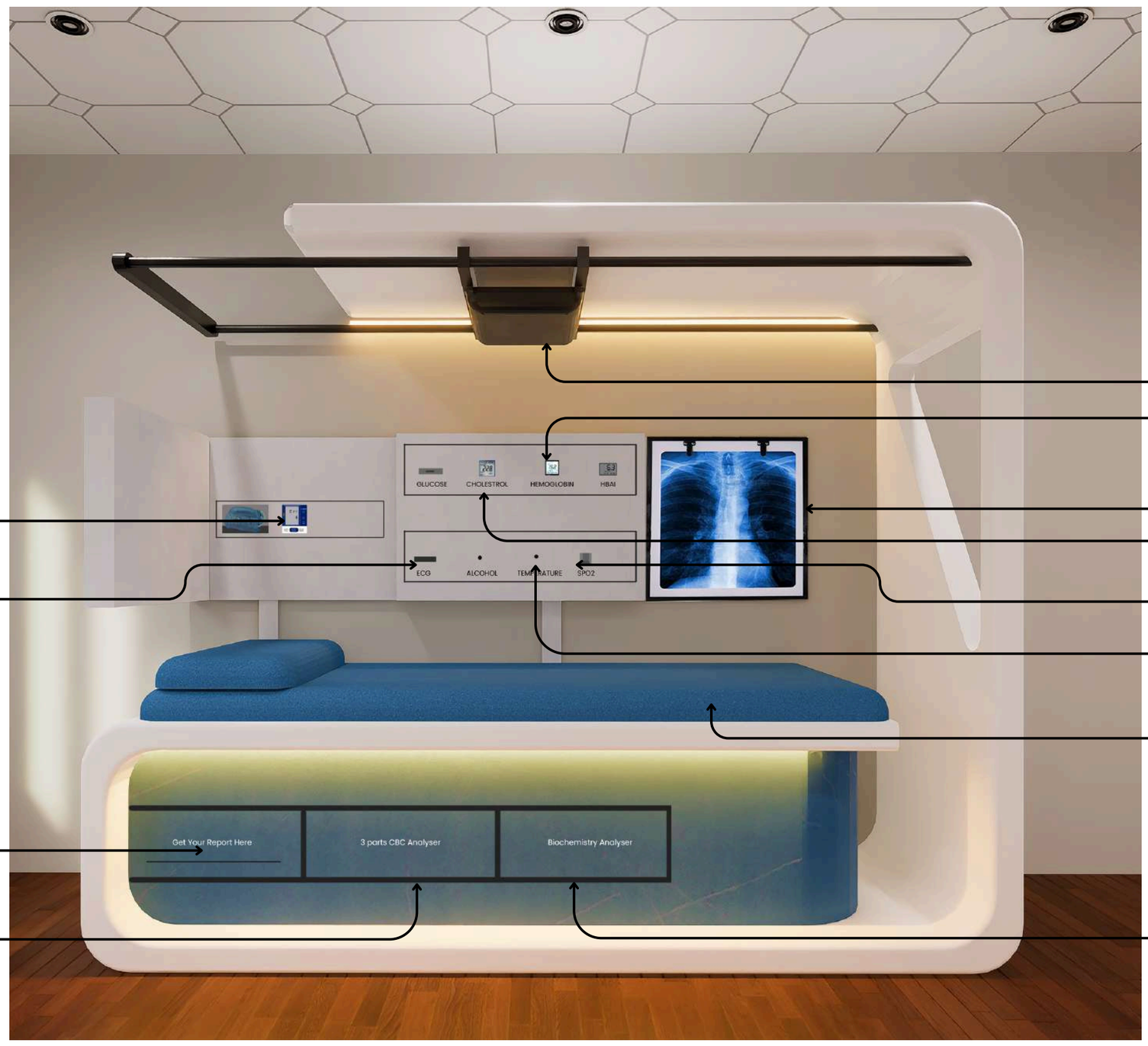
DIGITIZATION IN HEALTH DIAGNOSIS SYSTEM

Smart Diagnostic Patient Bed with Integrated Health Monitoring System

SMART BED



PHOENIX MICROSYSTEMS

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Introduction to phoenix Microsystems

Phoenix Microsystems India Limited (PMS) (Founded in 2005), is promoted by well know business groups and young techno crafts having diversified experience in the field of development, maintenance and product development. PMS provides a complete end-to-end solution to address all the industrial needs of all businesses.PMS is committed to providing a unique package of cost- effective solutions, quality service and complete satisfaction to customers by continuous innovation and R & D, focusing on end to end user needs and building strategic partnerships with solution providers and system integrators.

Phoenix is a pioneering organization dedicated to delivering innovative and technology-driven solutions tailored for urban and rural area development. With a strong focus on integrating advanced technologies like IoT, AI, and data analytic. Phoenix Microsystems specializes in manufacturing and deploying cutting-edge devices such as health kiosks, Multi Purpose kiosk's, smart beds, vending machines, Water ATM and other intelligent systems designed to enhance urban living and streamline essential services.

Through its versatile product portfolio, Phoenix Microsystems addresses critical urban& rural challenges, including healthcare accessibility, public safety, and resource management. By offering health ATMs and mobile healthcare units, the company ensures that residents in Rural & urban areas have access to quick and reliable medical services. Its innovative solutions are enabling real-time data collection, monitoring, and analysis to support informed decision-making by Healthcare planners and administrators.

PROPOSED ABSTRACT

The Smart Diagnostic Patient Bed is an innovative solution designed specifically for doctor cabins and outpatient clinics. It integrates real-time health monitoring and rapid diagnostic testing into a compact, space-efficient bed system. Doctors can immediately perform essential diagnostic tests — such as vital checkup, blood glucose, hemoglobin, ECG, and mane more tests— while the patient remains comfortably seated or lying down.

This system significantly reduces the time between patient consultation, sample collection, testing, and diagnosis, enabling quicker clinical decisions and improved patient care. Equipped with a touchscreen interface, automatic data recording, and instant report generation, the Smart Diagnostic Patient Bed enhances workflow efficiency and promotes a modernized, technology-driven consultation experience. Its plug-and-play design ensures easy integration into any doctor's cabin without the need for major infrastructural changes.

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Phoenix Microsystems™

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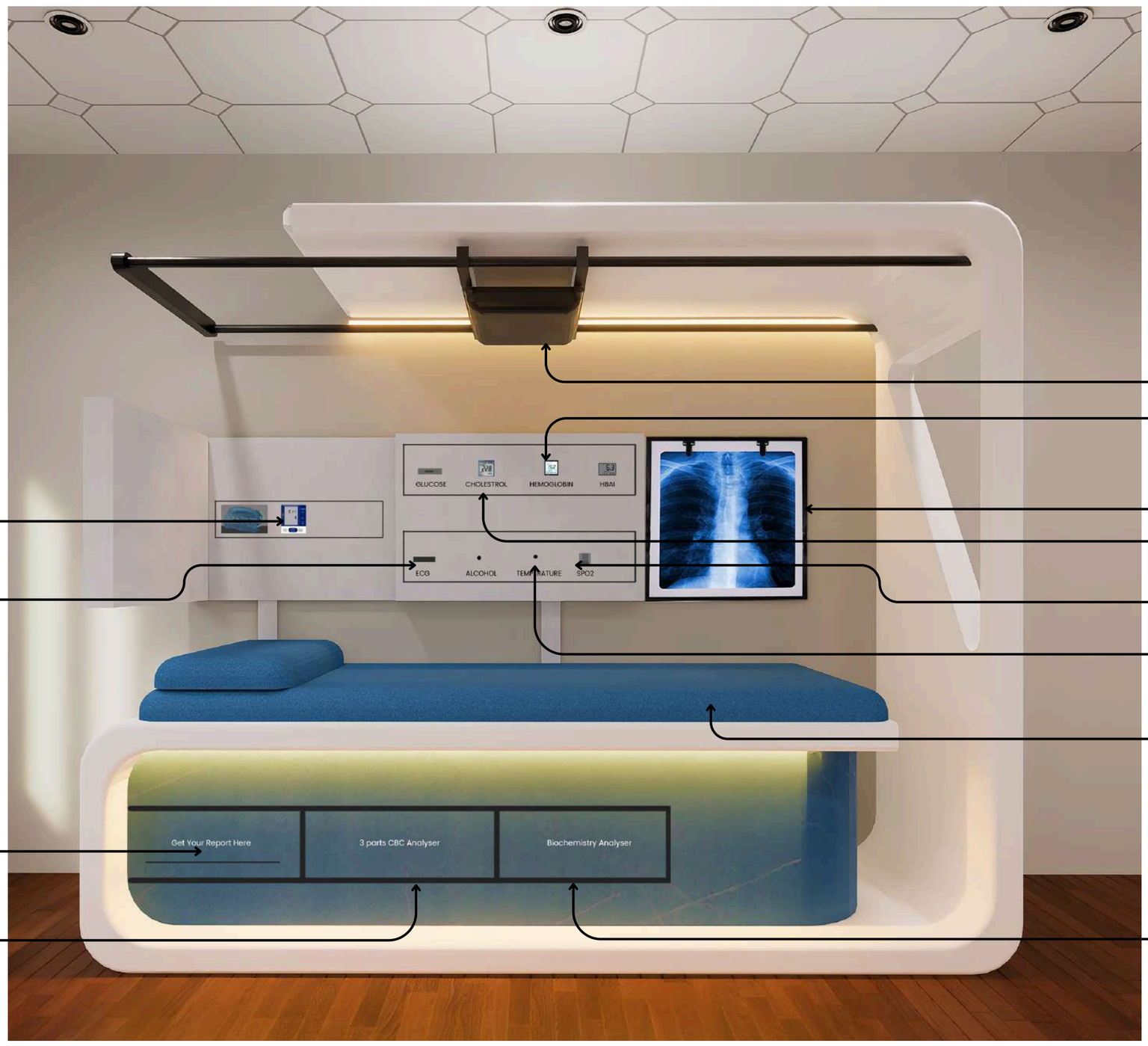

Conceptual View

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PROBLEM STATEMENT & SOLUTION

The smart Bed integrated into doctors' cabins aims to address several limitations and problems faced in the existing healthcare system. By incorporating advanced technologies and streamlined processes, this invention seeks to improve patient care, efficiency, and overall healthcare delivery. Some of the key problems it addresses and limitations it overcomes are:

1. Inefficient Record Keeping: Traditional paper-based patient records can be time-consuming, prone to errors, and difficult to access. The smart clinic's digital patient records system addresses this by providing a centralized, easily accessible, and error-free platform for storing and managing patient information.

2. Manual Diagnostics: Doctors often rely on their experience and expertise to analyze test results, which can be time-consuming and prone to human error. The AI-powered diagnostics in the smart clinic system can assist doctors in analyzing test results, identifying patterns, and suggesting potential diagnoses, leading to faster and more accurate decision-making.

3. Insufficient Remote Monitoring: In some cases, doctors may not be aware of patients' health status between appointments. The smart clinic's remote monitoring and alert system enable patients to share their health data with their doctors in real-time, allowing for early intervention and proactive care.

4. Security and Privacy Concerns: The healthcare industry deals with sensitive patient information, which requires robust security measures. The smart clinic prioritizes security and privacy by encrypting patient data and using the latest security protocols.

In modern clinical practice, rapid diagnosis and immediate decision-making are critical to improving patient outcomes and operational efficiency. However, traditional outpatient settings often depend on external laboratories and separate diagnostic equipment, leading to delays between patient consultation, sample collection, testing, and result interpretation. This time lag not only reduces efficiency but can also affect the quality of care.

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Recognizing these challenges, our team developed the Smart Diagnostic Patient Bed — a compact, integrated solution designed specifically for doctor cabins and small clinics. This innovation combines a patient resting bed with embedded diagnostic and health monitoring systems, allowing doctors to perform immediate tests such as blood glucose, hemoglobin, ECG, blood pressure, oxygen saturation, and body temperature without the patient needing to move to different locations.

The system simplifies the diagnostic process, minimizes patient waiting time, reduces dependence on external facilities, and empowers doctors to make faster clinical decisions during the consultation itself. By integrating vital monitoring, sample collection, and rapid testing into one space-efficient unit, the Smart Diagnostic Patient Bed represents a significant step forward in creating smarter, technology-enabled clinical environments, especially suited for primary care, preventive health camps, telemedicine cabins, and small hospitals.

KEY WORDS

Smart Clinic bed

Inbuilt Rapid Diagnosis Devices & Analyzers

Operational screen for doctors & patients

Patient registration

Patient medical history Dashboard

Report printing facility

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LIST OF REACTION

HEALTH KIOSK TEST PARAMETERS: NON- INVASIVE TEST PARAMETER

Basic Vital Checkup

1. Height
2. Weight
3. BMI
4. BMR
5. Body Water
6. Fat free weight
7. Muscle Mass
8. Skeletal Muscle
9. Body Fat
10. PSUBFAT
11. Visceral fat
12. Bone Mass
13. Body temperature
14. Oxygen
15. Pulse
16. BP Diastolic
17. Bp Systolic
18. Basal Metabolic rating
19. Metabolic Age
20. Protein
21. Physical rating
22. Alcohol test
23. 12 lead ECG test

Eye checkup Test

1. Distance vision test
2. Near vision test
3. Astigmatism test
4. Color vision deficiency test
5. Dry eye test

Image visualization test

1. Ear , Nose, throat Visualization
2. Skin and Nail Image Capturing
3. ORACAM Dental checkup
4. Non- Invasive Breast cancer test

Risk assessment test (Questionary based test)

1. HIV Risk test
2. Lung Cancer Risk Test
3. Breast cancer risk test
4. Brain cancer risk test
5. Tumor risk test
6. Cervical Cancer Assessment
7. Heart disease Risk test
8. Covid risk test IQ Test

Urine Test

1. Glucose
2. Ascorbic Acid
3. Bilirubin
4. Ketone
5. Specific Gravity
6. pH
7. Protein
8. Urobilinogen
9. Nitrite
10. Leukocytes

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Phoenix™ Microsystems

HEALTH TEST PARAMETER INVASIVE TEST PARAMETER

Rapid test

1. Malaria Test
2. Typhoid Test
3. HIV I & II Test
4. Chikungunya
5. Leptospira
6. Dengue Ns1
7. Dengue IgM/ IgG
8. Hepatitis B
9. Hepatitis C
10. scrub typhus
11. Syphilis

Blood test

1. Glucose test
2. Hemoglobin test

Lipid profile test

1. Total cholesterol
2. Low-density lipoprotein (LDL)
3. High-density lipoprotein (HDL)
4. Triglycerides
5. LDL HDL Ratio

ADVANCED DIAGNOSIS LAB: Non-INVASIVE TEST PARAMETER

Portable Digital X-Ray

1. Contagious disease (Tuberculosis)
2. Lung abnormalities (Atelectasis ,Lung Opacity (Consolidation, Infiltration) ,
3. Pleural Effusion Nodule/Mass) Cardiovascular (Cardiothoracic Ratio & Cardiomegaly)

ADVANCED DIAGNOSIS LAB: Non-INVASIVE TEST PARAMETER

CBC analyzer test (Invasive Test)

1.White blood cells (WBC)
2. Lymphocytes (LYMPH#)
3. Mid cells (MID#)
4. Granulocytes (GRAN#)
5. Percentage of lymphocytes (LYMPH%)
6. Percentage of mid cells (MID%)
7. Percentage of granulocytes (GRAN%)
8. Red blood cells (RBC)
9. Hemoglobin (HGB)
10. Hematocrit (HCT)

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Biochemistry Analyzer Test

1. Lipid profile (Basic) (HDL, LDL, Triglycerides, Cholesterol)
2. Lipid Profile (Advance) (ApoA1, APOB)
3. Kidney profile function test (basic) (Urea, Uric acid, Creatinine, Calcium Potassium, Micro albumin, Micro Protein, Phosphorous
4. Liver profile/Function test (Basic) (SGOT/ALT, SGPT/AST, Alkaline Phosphate, Bilirubin Total & Direct, Albumin, Total protein)
5. Liver profile/ Function test(Advance) (Amylase, Lipase, LDH)
6. Diabetic profile (Glucose, HbA1c)
7. Myocardial infraction (Ck-Mb)
8. Muscle Damage / Monitor traetment (Ck-NAC)
9. Inflammation in acute / Chronic disorder (CRP)
10. Rheumatoid Arthritis (RA/RF)
11. Strep infection (ASO)
12. Risk of poisoning (Cholinesterase(S.L.))
13. Nutrition's deficiency (ZINC, COPPER)
14. Anemia (TIBC,IRON)

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