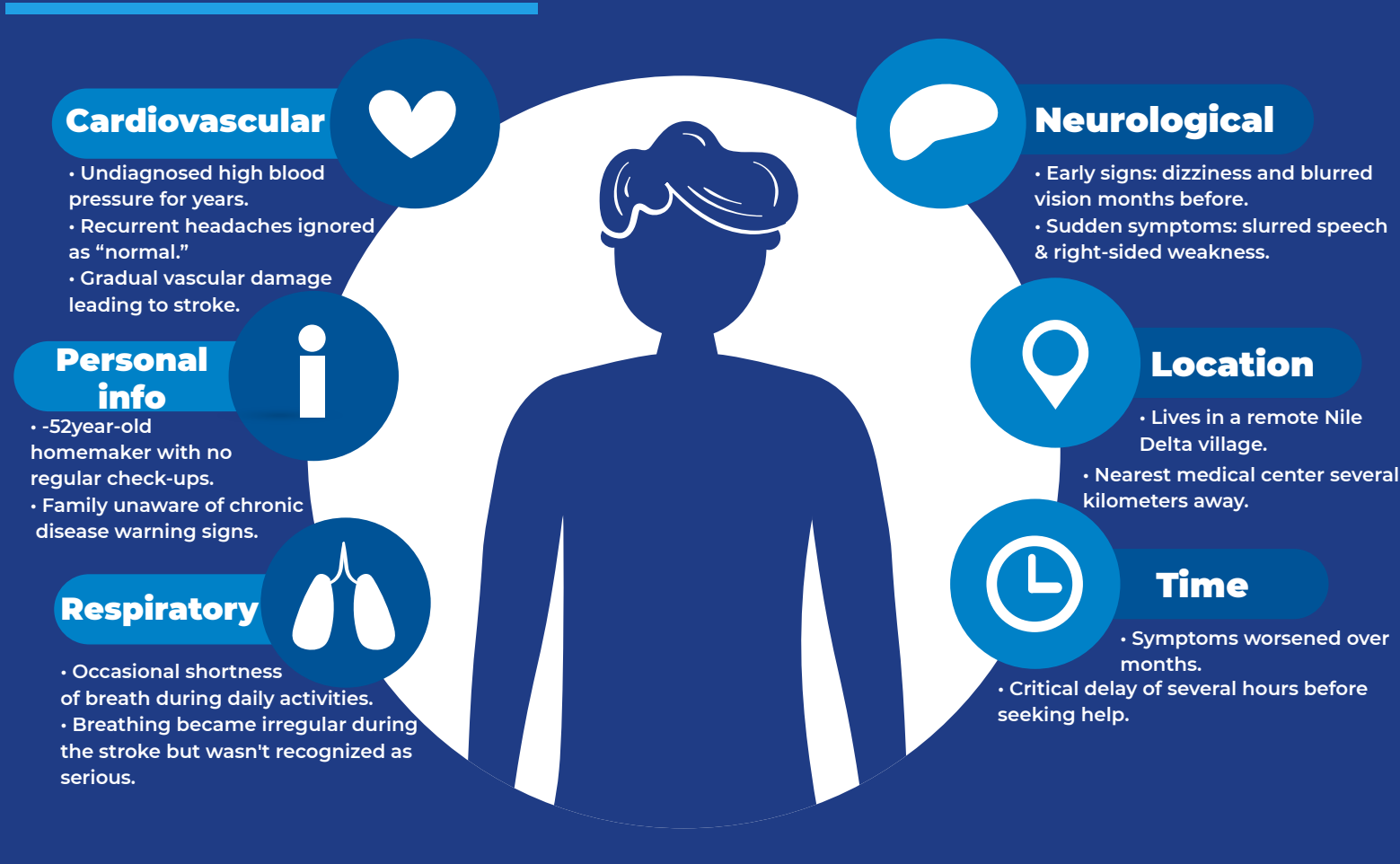
Tammen proposal

• The Problem



FULL STORY

In 2023, a -52year-old woman from a remote Nile Delta village died from a severe stroke caused by long-standing, undiagnosed hypertension. She had experienced headaches, dizziness, and occasional breathlessness for months, but her family considered them normal. On the day of the stroke, she developed slurred speech and weakness on one side, yet no one recognized these as emergency signs. Living far from medical services and lacking routine check-ups led to a dangerous delay of several hours before reaching a clinic. By then, treatment was no longer effective. Her case reflects how limited awareness and slow access to care can turn preventable conditions into fatal outcomes.

• The Solution & Audience personas

Audience

he CARE system is designed to serve all members of society, with particular emphasis on individuals at higher risk due to limited access to health services or chronic health needs, including:
• People living with hypertension, diabetes, and cardiovascular diseases
• Residents of remote or underserved areas where medical centers are scarce
• Individuals who lack regular medical follow-up or health education resources

Solution

Tamen's CARE (Clinical Assistant for Reading & Evaluation) provides a practical, technology-driven solution to the rising health awareness gap and limited access to medical services. The device functions as a smart health station, similar to an automated kiosk, and can be deployed in areas where traditional healthcare is difficult to reach—such as metro stations, rural villages, universities, and crowded public spaces.

CARE combines screening, education, and emergency support in a single platform designed to empower individuals and reduce preventable health complications.

1. Instant Health Screening

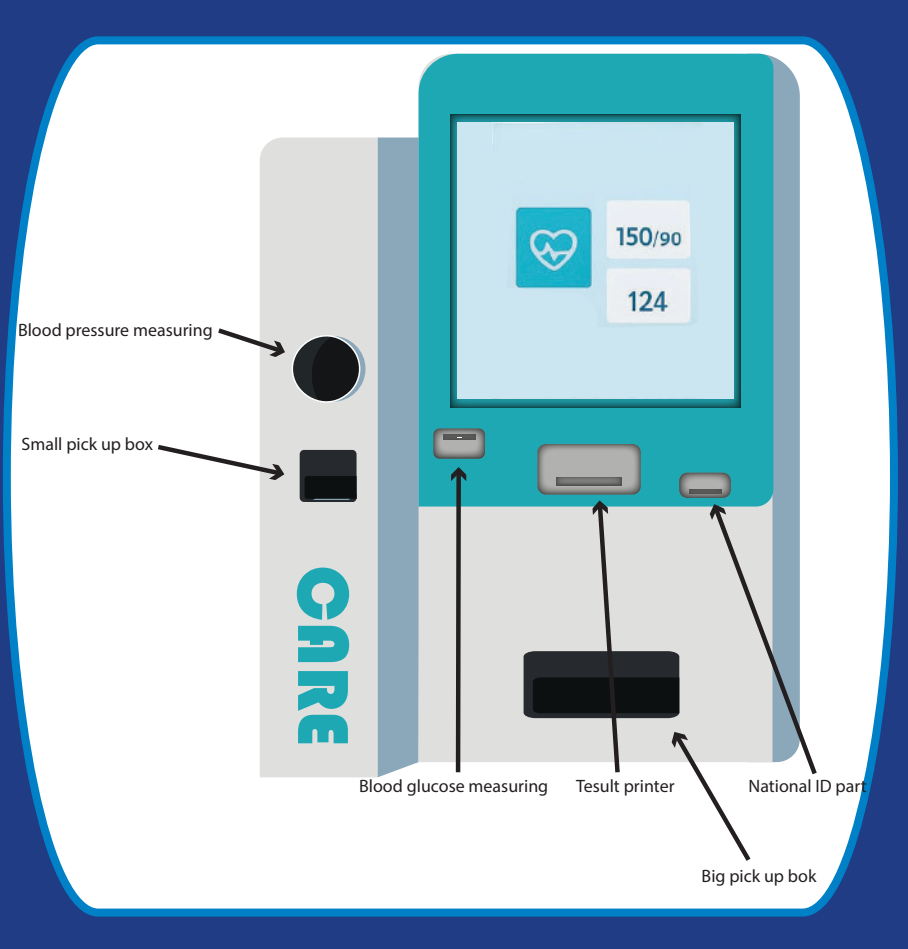
CARE offers rapid, user-friendly screening for blood pressure and blood glucose. By inserting a national ID card, the user receives personalized evaluations. If abnormal readings are detected, the system provides immediate guidance—such as steps to stabilize blood pressure or quick interventions for low blood sugar—helping prevent dangerous situations before they escalate.

2. Emergency Guidance and Response

The device serves as a first-response tool. Through its interactive screen, users can report medical emergencies and receive clear, step-by-step instructions for managing conditions like fainting, chest pain, or sudden weakness. At the same time, CARE automatically notifies emergency services, sending the user's exact location to minimize delays in care.

3. Referral to Nearby Healthcare Facilities

CARE is connected to a digital map of clinics, hospitals, and pharmacies. After a screening or emergency query, the system can direct the user to the nearest appropriate facility and display the services available there, ensuring people know exactly where to go for further treatment.



Prototype

4. Continuous Health Education

To promote long-term prevention, CARE displays short, reliable medical tips and myth-busting information throughout the day. These micro-lessons help users recognize warning signs, adopt healthier habits, and become more informed about chronic diseases and emergencies.

Security and Data Protection

To ensure safe use, CARE utilizes a facial-verification system that matches users to their national ID, preventing misuse and keeping personal health data secure. All information is accessed only with user consent and handled with strict privacy measures.

• Team members

Mohamed Hany El-Bokhary
Team leader & matching the identity of all the files

Shorouk Osman Hassani
Presentation, social media, brochure, flyer and poster

Sameer Samah Sameeh
UI & UX shape of the device and making the final shape of the device with AI

Ahmed Hussein Abdelkarim
Business card & Magazine

Al-Shaimaa Anwar Ali Mohamed
Website, Mood board and Magazine cover

• Key Performance Indicators (KPIs)

1. System Performance Metrics

1.1 Response Time
• Measures how quickly the system responds, performs readings, and displays results.
• Target: 3–2 seconds for UI actions and under 10 seconds for measurement cycles.
• Ensures smooth use in high-traffic locations and for elderly users.

1.2 Machine Processing Efficiency
• Tracks speed and accuracy of blood pressure and glucose readings.
• Measures responsiveness of corrective-fluid dispensing.
• Includes session completion without errors or interruptions.

2. System Reliability & Availability Metrics

2.1 System Uptime
• Measures how consistently the machine stays operational.
• Target: %99 uptime to maintain public trust and accessibility.

2.2 Component Durability
• Evaluates sensor consistency and dispensing reliability.
• Tracks maintenance frequency and component performance over time.

3. User Experience & Engagement Metrics

3.1 User Adoption Rate
• Tracks daily/monthly users, return rates, and overall usage growth.

3.2 UI Accessibility Metrics
• Measures how easily first-time and elderly users complete sessions.
• Tracks session duration as an indicator of UI clarity.

3.3 Customer Satisfaction Index
• Includes user feedback ratings and reports of difficulties or confusion.

4. Health Impact & Quality Metrics

4.1 Measurement Accuracy
• Monitors compliance with medical accuracy standards and variance from manual readings.

4.2 Corrective Action Effectiveness
• Evaluates precision of fluid dispensing and improvement in user metrics after intervention.

5. Operational Efficiency Metrics

5.1 Cost Efficiency
• Tracks operating costs per session and overall resource usage.

5.2 Maintenance & Downtime Efficiency
• Measures repair speed (MTTR) and time between failures (MTBF).

5.3 Inventory Refill Metrics
• Tracks consumable usage and refill timeliness to maintain continuous service.

6. Financial & Business Growth Metrics

6.1 Revenue Metrics
• Tracks revenue per machine and the time needed to recover production costs.

6.2 Expansion Metrics
• Measures installation rate and compares performance across locations.

7. Safety, Compliance & Hygiene Metrics

7.1 Hygiene Compliance Rate
• Includes monitoring of cleaning cycles, surface sanitation, and nozzle safety.

7.2 Safety Incident Rate
• Tracks any user safety complaints or operational incidents.

7.3 Regulatory Compliance Score
• Ensures alignment with medical device regulations and quality certifications.

• Risk Assessment & Mitigation Plan

1. Technical Risks

1.1 Sensor Malfunctions
• Sensors may degrade or produce inaccurate readings.
• Mitigation: Routine calibration, certified sensors, automated diagnostics, and replacement schedules.

1.2 Software Bugs or Crashes
• Errors may interrupt sessions or damage user trust.
• Mitigation: Full software testing, fail-safe recovery, regular updates, and remote monitoring.

1.3 Connectivity Issues
• Network outages may limit updates and data syncing.
• Mitigation: Offline functionality, multi-network options, and local data buffering.

2. Operational Risks

2.1 Consumable Depletion
• Fluids may run out during peak usage.
• Mitigation: Smart inventory sensors, refill alerts, and backup containers.

2.2 Hygiene Failures
• Poor sanitation may pose health risks.
• Mitigation: Self-cleaning cycles, daily surface cleaning, audits, and sealed consumables.

2.3 Unexpected Downtime
• Mechanical or software failures may stop operation.
• Mitigation: Predictive maintenance, remote diagnostics, spare parts, and trained technicians.

3. User-Related Risks

3.1 Misuse or Incorrect Operation
• Users may position incorrectly or misunderstand steps.
• Mitigation: Simple UI, voice/visual guidance, and placement warnings.

3.2 User Hesitation or Distrust
• Some users may not trust automated health devices.
• Mitigation: Clear signage, accuracy badges, and first-time trial support.

3.3 Overdependence
• Users may rely on the machine instead of medical visits.
• Mitigation: Clear disclaimers and prompts to seek professional care.

4. Regulatory & Compliance Risks

4.1 Certification Delays
• Delay in meeting medical device regulations.
• Mitigation: Early expert consultation, documentation, and third-party testing.

4.2 Data Privacy Concerns
• Health data may raise privacy issues.
• Mitigation: Encryption, minimal data storage, and transparent privacy notices.

5. Financial & Business Risks

5.1 High Production Cost
• Installation and maintenance may exceed budget.
• Mitigation: Bulk sourcing, modular hardware, and targeted pilot deployment.

5.2 Low Revenue in Some Locations
• Weak usage in poor-performing areas.
• Mitigation: Site surveys, relocation, and partnerships with clinics or malls.

6. Safety Risks

6.1 Electrical/Mechanical Hazards
• Risks of short circuits or mechanical failures.
• Mitigation: Certified components, safety protections, and routine inspections.

6.2 Allergic Reactions
• Users may be sensitive to certain fluids.
• Mitigation: Ingredient display and "Skip Drink" options.

7. Environmental Risks

7.1 Waste Disposal Issues
• Improper disposal can cause environmental harm.
• Mitigation: Eco-friendly materials and recycling support.

7.2 Power Outages
• Electricity instability may interrupt sessions.
• Mitigation: Solar panel support, backup battery, and auto-save functions.

Functional & Non-Functional Requirements

1. User Interface & Interaction Requirements
• Simple, intuitive interface suitable for all age groups, including elderly and low-literacy users.
• Large icons, clear labels, and minimal text for easy navigation.
• Supports multiple languages selected at the start of each session.
• Visual and optional audio guidance for step-by-step instructions.
• Responsive touchscreen that functions reliably in public environments.
• Adjustable text size, brightness, and accessibility features for users with visual or motor impairments.

2. Health Measurement Requirements
• Medical-grade sensors for accurate blood pressure and blood glucose readings.
• Clear results displayed with categories such as normal, high, or low.
• Automatic detection of improper placement or measurement errors.
• Internal calibration checks before and after each session.
• Machine stops readings if accuracy thresholds are not met.

3. Corrective Action & Dispensing Requirements
• System analyzes readings and dispenses the appropriate corrective drink: salty water, sugary water, or natural juice.
• Hygienic, sealed containers for all fluids and precise automated dispensing.
• Users may opt out of drinks and receive on-screen recommendations instead.
• Real-time monitoring of fluid levels with alerts and automatic disabling when supplies run low.

4. Session Management & Data Handling
• Guided user flow: welcome → measurements → results → corrective action → completion.
• Full session completed within 2–1 minutes for high-traffic areas.
• Error detection for incorrect positioning or movement, with clear prompts.
• Color-coded results, simple explanations, and optional QR code export.
• No personal data stored unless legally permitted; encrypted transmission when needed.

5. Operational & Maintenance Requirements
• Remote monitoring for uptime, fluid levels, sensor status, and performance alerts.
• Over-the-Air (OTA) updates for software improvements without interrupting sessions.
• Maintenance mode with operator authentication and logged activities.
• Modular hardware to simplify repairs and reduce downtime.

6. Performance & Reliability Requirements
• UI responds within 3–2 seconds; full health check within 2–1 minutes.
• High throughput for 200–150 users daily with stable performance.
• Accurate medical readings aligned with international standards; %5± dispensing precision.
• Minimum %99 uptime, automatic recovery from minor faults, and clear "Out of Service" alerts for major issues.
• Backup power via solar-assisted battery for safe operation during outages.
• High MTBF through durable public-use components.

7. Security & Privacy Requirements
• Full encryption (AES, TLS) for data transmission and optional storage.
• No personal identifiers kept unless required and explicitly allowed.
• Secure administrative access via authentication and tamper protection.
• Reinforced housing to prevent vandalism or unauthorized access.

8. Scalability & Future Expansion Requirements
• Modular software supporting additional sensors, new drink options, and integrations.
• Expandable hardware ports for heart rate, SpO_2, temperature, and oxygen devices.
• Cloud-ready architecture for analytics dashboards depending on privacy laws.
• Designed for large-scale deployment across malls, transport hubs, and remote regions.

9. Safety, Hygiene & Environmental Requirements
• Safe electrical design with overvoltage and short-circuit protection.
• Hygienic dispensing paths with automatic internal sanitization cycles.
• UV sterilization options and easy-to-clean exterior surfaces.
• Emergency shutdown for critical failures or contamination risks.
• Operates within standard indoor temperatures; dust- and humidity-resistant materials.
• Low-noise operation and energy-efficient idle mode.

Deliverables

1. Logo
2. Business Card
3. Flyer
4. Poster
5.Social Media Posts
6.Website
7.UI & App
8.Magazine Cover
9.Magazine
10. Project Presentation

Thank You