

BBU International Hospital & Medical Center - Project Documentation

![BBU Hospital Banner](assets/hero_hospital.jpg)

📄 Executive Overview

****BBU International Hospital & Medical Center**** is a state-of-the-art, responsive web application designed for Build Bright University (BBU) Web Development project showcase. It demonstrates modern web UI/UX aesthetics, client-side data management, interactive medical tools, and patient management features built with pure HTML5, Vanilla CSS3, and JavaScript (ES6+).

🚀 Key Features

1. ****🏥 Modern Medical UI & Responsive Design System****

- Built with custom CSS custom properties (variables), glassmorphism effects (``backdrop-filter: blur()``), gradient accents, and micro-animations.
- ****Dark & Light Mode Switcher****: Seamless theme toggling with automatic persistence in ``localStorage``.
- ****Multilingual UI Simulation****: Quick switch between English (EN) and Khmer (KM).

2. ****📅 Multi-Step Online Appointment Booking Wizard****

- Interactive 3-stage modal:
 - ****Stage 1****: Select clinical department, specialist doctor, date, and time slot.
 - ****Stage 2****: Enter patient contact details and symptoms.

- **Stage 3**: Instant generation of a printable **Digital Appointment Pass** complete with a custom QR code canvas.

3. **Doctor Directory & Live Filter Engine**

- Real-time search by doctor name, specialty, or condition.
- One-click specialty pill filtering (Cardiology, Neurology, Pediatrics, Orthopedics, Oncology).
- Doctor card details featuring ratings, experience, education, schedule, and profile modal.

4. **Live Room & ICU Bed Availability Tracker**

- Dynamic capacity meters displaying real-time occupancy percentages for ICU, Emergency ER, General Wards, and VIP Suites.
- Color-coded urgency alerts (Green = Normal, Amber = Moderate, Red = High Occupancy).

5. **Patient E-Health Portal**

- Secured modal interface presenting demo patient records for *Sokha Vathanak* (ID: `BBU-PAT-98421`).
- Tabbed view for **Consultation History**, **Active Prescriptions**, and **Lab Reports** (with PDF download simulation).

6. **Interactive Health Assessment Calculators**

- **BMI Calculator**: Uses formula $\text{BMI} = \frac{\text{weight (kg)}}{(\text{height (m)})^2}$ to evaluate body mass index with visual result gauges and medical recommendations.
- **Cardiac Risk Evaluator**: Calculates risk profiles based on age, blood pressure, and lifestyle factors.

7. ** 🚨 24/7 SOS Emergency Alert System **

- Pulsating red SOS button in top bar and header.
- Emergency dispatch modal featuring simulated GPS coordinates (` 11.5621° N, 104.8885° E `) and immediate ambulance dispatch notifications.

🛠️ Technology Stack & Architecture

- **Frontend Core**: HTML5 (Semantic elements, accessibility tags, Meta SEO attributes)
- **Styling**: Vanilla CSS3 (CSS Variables, Flexbox, CSS Grid, Glassmorphism, Animations)
- **Logic & Interactions**: JavaScript ES6+ (DOM Manipulation, LocalStorage, Event Delegation, HTML5 Canvas API)
- **Typography & Icons**: Google Fonts (` Outfit ` , ` Plus Jakarta Sans `), FontAwesome 6 Free CDN

📁 File Structure

```text

bbu-hospital-project/

```
|— index.html # Main HTML5 entry point
|— README.md # Detailed project documentation
|— css/
| |— style.css # Design system, CSS variables, dark mode, component styling
```

```
└─ js/
| └─ data.js # Data registry (departments, doctors, bed inventory, patient records)
| └─ app.js # Main application logic & interactive controllers
└─ assets/
 └─ hero_hospital.jpg # Hospital exterior & reception hero banner
 └─ doctor_cardiology.jpg # Specialist portrait
 └─ doctor_neurology.jpg # Specialist portrait
 └─ doctor_pediatrics.jpg # Specialist portrait
 └─ facility_icu.jpg # ICU room facility showcase
 ...

```

## 🇮🇹 Data Schema Specification (`js/data.js`)

### Doctor Object Schema

```javascript

```
{
  id: "doc-1",
  name: "Dr. Sophea Chem",
  title: "Senior Consultant Cardiologist",
  department: "cardiology",
  deptName: "Cardiology",
  experience: "16+ Years",
  rating: 4.9,
  reviewsCount: 342,
```

```
education: "MD, PhD (Harvard Medical School, USA)",
image: "assets/doctor_cardiology.jpg",
schedule: ["Mon", "Wed", "Fri"],
timeSlots: ["09:00 AM", "11:30 AM", "02:00 PM", "04:30 PM"],
bio: "Dr. Sophea is an internationally recognized cardiologist..."
}
` ``
```

Bed Occupancy Schema

```
` `` `javascript
{
  total: 45,
  occupied: 38,
  reserved: 3,
  available: 4,
  name: "Intensive Care Unit (ICU)"
}
` ``
```

📖 How to Run the Project

1. ****Direct Browser Execution****:

Simply open `index.html` in any web browser (Google Chrome, Microsoft Edge, Mozilla Firefox, Safari).

2. ****Local HTTP Development Server****:

```
` `` bash
```

```
# Using Python 3 built-in server:
```

```
cd bbu-hospital-project
```

```
python -m http.server 8080
```

```
# Or using Node.js npx serve:
```

```
npx serve .
```

```
` ``
```

Open your browser and navigate to `http://localhost:8080``.

🌟 Future Enhancements Roadmap

- ****Backend Integration****: Connect to Node.js / Express backend with MongoDB or MySQL database.
- ****Real-time WebSockets****: Live bed status updates across multiple devices.
- ****Payment Gateway****: Integration with ABA Pay / KHQR / Visa for instant booking reservation deposits.
- ****Telemedicine Live Video Call****: WebRTC online consultation room for remote patients.

📄 License & Credits

Developed for ****Build Bright University (BBU) Web Project Presentation****.

© 2026 BBU International Hospital Project. All Rights Reserved.