* ***Waterfall Development Model for a Smart Home Security System***
* ***Requirement Gathering & Analysis***

**Goal -** *Understand the market needs, customer pain points, and define product requirements.*

* *Identify target users (homeowners, renters, business owners).*
* *Define* ***core features****: motion detection, night vision, mobile alerts, cloud storage, AI face recognition*
* *Set* ***technical, budgetary, and regulatory constraints***
* *Conduct market research and competitor analysis.*
* ***System Design***

**Goal -** *Define the product's technical and functional architecture.*

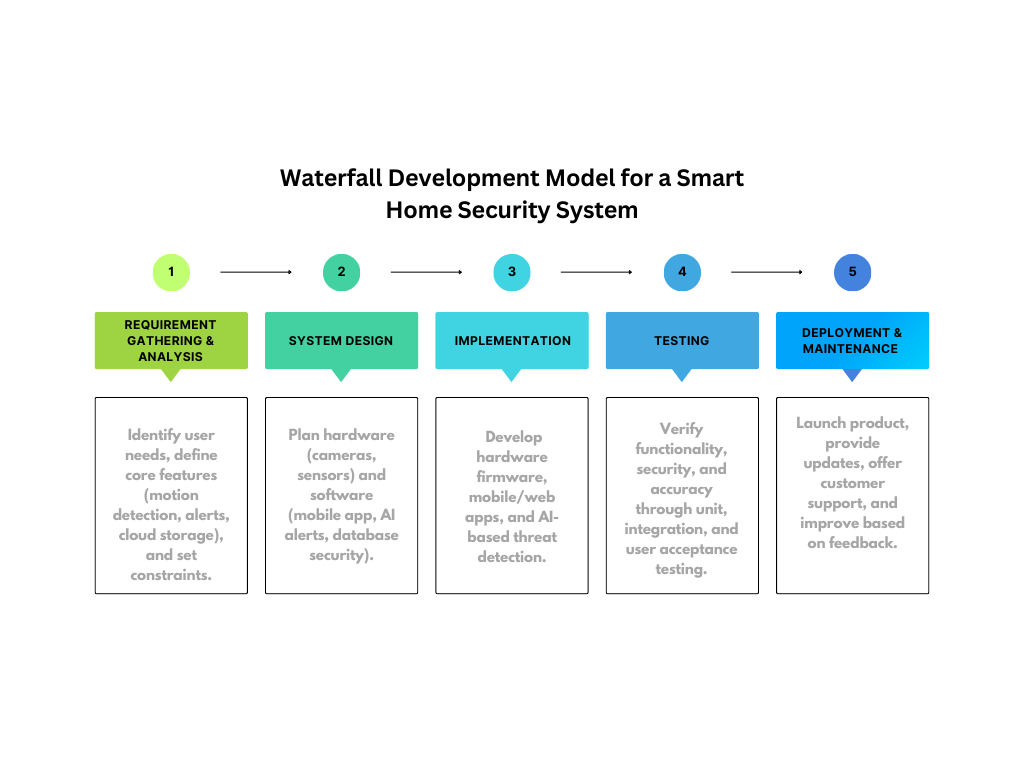
* ***Hardware Design* -** *Select components (cameras, motion sensors, Wi-Fi modules)*
* ***Software Design* -** *Develop app UI/UX, cloud storage system, AI-based alerts.*
* ***Database & Security Planning* -** *Ensure encrypted data storage and secure remote access.*
* ***Power Management* -** *Optimize battery efficiency for wireless security devices.*
* ***Implementation (Development)***

**Goal -** *Build the hardware and software components.*

* *Develop* ***firmware*** *for cameras, motion sensors, and cloud connectivity.*
* *Write software for* ***mobile & web applications*** *(Android/iOS) to control and monitor the security system.*
* *Implement AI-based* ***threat detection and real-time alert notifications.***
* *Conduct* ***backend development*** *for data processing, cloud integration, and remote access*
* ***Testing & Quality***

**Goal *-*** *Ensure the system functions smoothly, securely, and reliably.*

* *Perform* ***unit testing*** *(each component separately) for cameras, motion sensors, and software.*
* *Conduct* ***integration testing*** *to verify seamless hardware-software communication.*
* *Validate* ***real-time alerts, remote access, and AI face recognition accuracy.***
* *Conduct* ***User Acceptance Testing (UAT)*** *with selected users for feedback*.
* ***Deployment & Maintenance***
* **Goal -** *Launch the product and provide ongoing support and improvements.*
* *Deploy the* ***Smart Home Security System to the market (retail & e-commerce)***
* *Provide* ***customer support, setup guides, and online troubleshooting resources.***
* *Release* ***regular firmware and software updates*** *to fix bugs and improve security*
* *Gather customer feedback and integrate improvements in future product version*

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