Institute of Information Technology

PGDIT

Jahangirnagar University

Savar Dhaka

Network Security

Assignment On

Proposal a security system for houses covering all the security aspects.

Submitted By:

Name: Md Najmul Hossain

Roll: 23306

Proposed Security System

1. **Intrusion Detection System (IDS):**
    - **Components:**
        - Door and window sensors (magnetic contact sensors) – installed on all entry points.
        - Motion sensors – strategically placed in common areas.
        - Smart locks – for all entry doors with PIN and biometric options.
    - **Features:**
        - Sends alerts to your phone and alarm when a breach is detected.
        - Includes panic buttons in key locations for emergencies.
2. **Surveillance System (CCTV):**
    - **Components:**
        - Outdoor and indoor IP cameras (4 outdoor, 2 indoor).
        - Network Video Recorder (NVR) with a 1TB storage drive for recording.
        - Remote access through a mobile app.
    - **Features:**
        - Night vision cameras for 24/7 monitoring.
        - Motion-triggered recording to save storage space.
3. **Fire and Smoke Detection:**
    - **Components:**
        - Smoke detectors (installed in all rooms and hallways).
        - Heat detectors for the kitchen and high-risk areas.
        - Carbon monoxide (CO) detectors for living spaces.
    - **Features:**
        - Sends alerts to the user's phone and sounds an internal alarm.
4. **Perimeter Security:**

- **Components:**
  - Outdoor motion detection lights – 4 units for the boundary.
  - Smart doorbell with a camera.
- **Features:**
  - Lights activate upon detecting motion at night.
  - Smart doorbell allows two-way audio with visitors.

5. **Smart Control Hub:**
   - **Components:**
     - Central control hub (e.g., Amazon Echo or Google Nest).
     - Integration with mobile apps for controlling locks, lights, and cameras.
   - **Features:**
     - Voice control and automation options.
6. **Backup Power:**
   - **Components:**
     - Uninterruptible Power Supply (UPS) for essential systems.
   - **Features:**
     - Ensures functionality during power outages.
7. **Internet Connectivity:**
   - **Components:**
     - Dedicated router with a secured network.
     - Failover to a 4G/5G modem for uninterrupted access.

Block Diagram:

Module	Motion Sensor
Input	Passive infrared
Outputs	Digital signal to the microprocessor
Function	To detect motion

Module	Camera
Input	light
Outputs	JPEG Image to microprocessor
Function	To take an image of secured area

Module	Microprocessor
Input	Sensor, camera and Wi-Fi
Outputs	Signal to Wi-Fi, Camera and buzzers
Function	Receive/interpret data

Module	Wi-Fi
Input	Microprocessor and smartphone
Outputs	Microprocessor and smartphone
Function	Receive/interpret data

Module	Smart Phone
Input	Analyzed data from microprocessor, user
Outputs	Commands to the microprocessor
Function	To control/manage the system

Approximate Budget

Cost analysis for smart Security system

Component	Quantity	Unit Cost (BDT)	Total Cost (BDT)
Door & Window Sensors	10	2,200	22,000
Motion Sensors	4	5,500	22,000
Smart Locks	2	16,500	33,000
Outdoor Cameras	4	11,000	44,000
Indoor Cameras	2	8,800	17,600
NVR with 1TB Drive	1	33,000	33,000
Smoke Detectors	6	4,400	26,400
CO Detectors	2	6,600	13,200
Heat Detectors	2	5,500	11,000
Outdoor Motion Lights	4	5,500	22,000
Smart Doorbell	1	16,500	16,500
Smart Control Hub	1	22,000	22,000
UPS (Basic)	1	33,000	33,000
Router	1	16,500	16,500

Total Estimated Cost: 332,200 Tk