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BASIC TASK

Assign tasks: Let each robot give them appropriate work based on their hardware conditions. For example, some robots may have advanced instruments that can effectively monitor certain areas, and some robots can defend against others.

Information security: Enable rapid communication and dissemination of information among each robot. Unlike the scene when Trump was assassinated, there are two communication systems that prevent effective communication between the Secret Service and local police.

Centralized data processing: By collecting information from each robot, such as camera and sensor data, to analyze whether changes need to be made in certain areas to reduce security vulnerabilities.

Efficient shift: Monitor the battery level of each robot and rely on a shift system to maximize the efficiency of the robots while reducing the minimum demand for them, in order to save costs.

Collaboration with other systems: Connect with other systems on campus, such as monitoring systems and emergency systems. Enable quick response in times of crisis.

MEDIUM TASKS

a) When addressing campus security and emergency situations, it is essential to first identify the key scenarios that may arise. For instance, fires, unlawful intrusions, natural disasters (such as earthquakes or floods), and health emergencies (like sudden cardiac arrests) are all critical scenarios that need consideration. For each scenario, we must determine the types of data that need to be collected and processed. This might include video surveillance data for verifying the authenticity of the event, navigation data to assist in guiding evacuations, energy usage data to control vital infrastructure, and real-time location data of students and staff for swift response.

When it comes to data storage, selecting the appropriate type of database is crucial. Relational databases are suitable for storing structured data, such as personal information of students. For unstructured data, such as video surveillance recordings, NoSQL databases might be more appropriate. Moreover, for navigation data that requires rapid read and write capabilities, real-time databases will offer better performance.

B) Several key factors must be considered when deciding on a database solution. First is the data set itself, including its variety, size, and complexity. Next is scalability, ensuring that the database can expand as the amount of data grows. Data consistency is another crucial aspect, ensuring the accuracy and reliability of data across all operations and queries.

Performance is a central consideration for database solutions, especially in emergency situations that demand a swift response. The database system must handle a high volume of simultaneous queries without degradation or significant delays. Security is also paramount, with data requiring protection against unauthorized access and threats.

Maintenance ease is a factor when selecting a database, as regular updates and maintenance are necessary to keep the system running optimally. Lastly, the solution's sustainability is critical, making sure that the chosen database can support campus security

and emergency response requirements over the long term.

By thoroughly considering these factors, we can design the most appropriate data storage and processing plans for each emergency scenario.

ADVANCED TASKS

Requirement of telecommunication

High-speed and low-latency network transmission
example: startlink, move the server near the network base station,so on.

Secure communication environment
example: firewall

Requirement of application

Natural language processing

Cloud computinng- distirbuted system