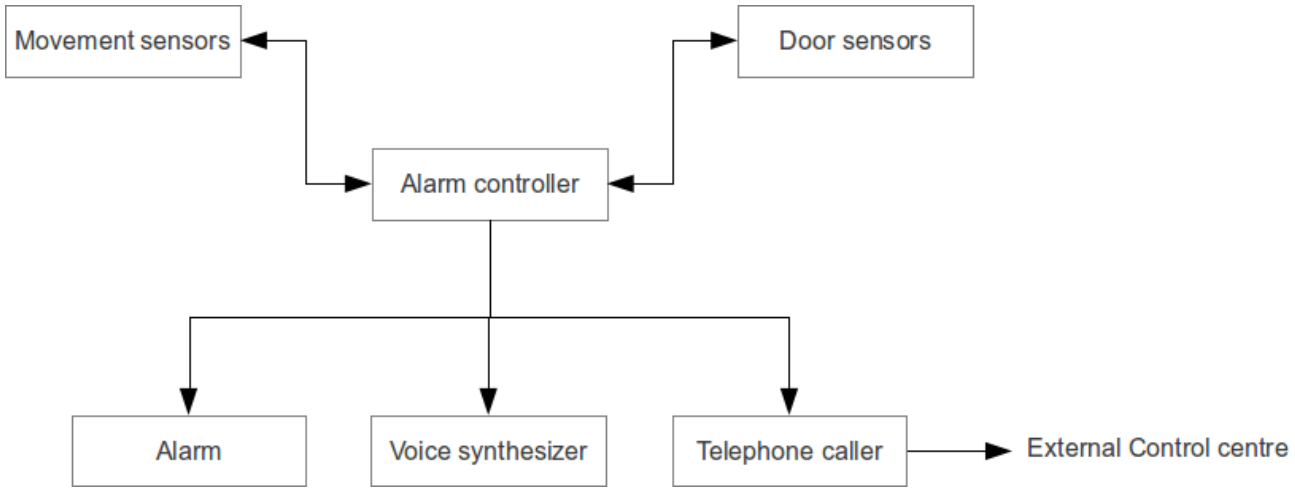
Ministry of Higher Education and Scientific Research		
Salahaddin University / Erbil		***Subject: Systems Analysis and Design***
College of Engineering		***Time: 90 Minutes***
Dept. of Software Engineering	***Mid Year Exam 2011-2012***	***Lecturer: Amanj Sherwany***

The highest obtainable mark is 17, the minimum passing mark is 8.5

Q1: (2 points)

Consider a security system that is an extended of the system shown in the following figure:



Which is intended to protect against intrusion and to detect fire. It incorporates smoke sensors, movement sensors, door sensors, video sensors, video cameras under computer control, located at various places in the building, an operator console where the system status is reported, and external communication facilities to call the appropriate services such as the police and fire departments. Draw the block diagram of a possible design for such a system.

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Q2: (3 points)

As an expert in computer security, you have been approached by an organization that campaigns for the rights of torture victims and have been asked to help the organization gain unauthorized access to the computer systems of an American company. This will help them confirm or deny that this company is selling equipment that is used directly in the torture of political prisoners. Discuss the ethical dilemmas that this request raises and how you would react to this request.

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Q3: (4 points)

Giving reasons for your answer based on the type of system being developed, suggest the most appropriate generic software process model that might be used as a basis for managing the development of the following systems:

- A system to control *Anti-Lock Braking System (ABS)* in car.
- An *MIPS(x86) CPU* emulator for studying purposes.
- A *university accounting system* that replaces the existing system.
- An interactive system that allows railway passengers to find train times from terminals installed in stations.

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Q4: (4 points)

You have got the following *system requirement* about the *borrowing* functionality of the Library system (LIBSYS) that you are developing:

> *"The LIBSYS should allow users to borrow books, after they prove that they are students. Students may not borrow too many books at the same time. The time between pressing the* ***borrow*** *button and processing the order should be* ***less than 3 seconds****, although if something went wrong the system should alert the user."*

In the above paragraph:

- Find two ambiguous requirements. **(2 points)**
- Extract the possible functional and non-functional requirements. **(2 points)**

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Q5: (4 points)

Suggest who might be stakeholders in *department's examination committee system*. Explain why it is almost inevitable that the requirements of different stakeholders will conflict in some way.

Good Luck