## Identify where and how robots and robotic technologies can be of benefit to society and industry. Discuss the main ideas behind the design, planning and control of a robotic system.

To answer, we will go through the design process of a robot:

* First of all, we need to identify a need, a problem, for which the robot would be the solution. Most of the time, it will be for inconvenient situations or dangerous places for human. By identifying the problem, we also take note of the requirements to satisfy the need.

For example, a women is alone at home with her baby sleeping. However, she needs to complete some tasks in the house and will need to leave the baby in the bedroom for a couple of hours. As she will not have the baby in sight, she needs the robot to monitor the baby’s activities in her absence. The robot can be in the form of a bracelet that would detect when the baby is awake by his heartbeat and would send an alert to the mother.

* The second step would be the research and the designing of the product.

From our previous example, the research would be to identify how sensible the bracelet would be, which power it would use, which materials it would be made of and how it would communicate with the mother.

* The third step would be the production of a prototype and the troubleshooting of the model. Here, modelling and simulation softwares would be of a great use as well as using small parts such as Legos.
* Once the above steps accomplished, the last part which is also the most critical is the programming and testing of the robot.

Robots are of a high benefit to the industry and the society in general as they are the starting point of the creation of every robot. They are put where humans cannot go such as dangerous spots in industry or for redundant tasks where robot would be faster than humans.

However, in some places, robots are overtaking human jobs as they perform better and faster. The need has shifted from keeping humans in industry safe to maximize the profit by increasing the productivity. This causes other kind of social problems, worth further discussion.

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| * 1. **Discuss the main core elements of a robotic system and what their implications are in robotic engineering.**   <https://www.epsrc.ac.uk/research/ourportfolio/themes/engineering/activities/principlesofrobotics/> |  |  |  |
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