Development of a Snake Robot

Thesis outline

In the event of a major disaster (think of the earthquake in Haiti), lots of human lives are lost because the human disaster relief operators cannot reach the people surviving the initial disaster on time, e.g. because they are trapped inside collapsed buildings. Robots could greatly enhance the chances of survival of people in these circumstances. However, the design requirements for such robotic systems are extremely hard:

- They have to be very robust
- They have to be small enough to enter into small openings
- They have to be agile to cross very difficult terrain
- They have to be autonomous from an energetic point of view (not carrying wires behind them)

As a result of these constraints, only snake-like robots pose as valuable candidates for this application field. However, the mechanical design of snake-like robots is not a solved issue.

In this context, the Technical University of Iasi, Romania is working on a snake-like robot. The goal of this thesis is to further enhance the mechanical and electronic design of this robot.

Student Tasks

The student will receive the following:

- Design concept of a snake-like robot

The student is requested to output the following:

- Augmented design of a snake-like robot

Student Profile

- Experience in CAD/CAM modeling
- Experience in Electronics design
- Sound interest in robotics hardware