Title: Intelligent Six Legged Robotic Bug  
Proposed supervisors: Dr. Bing L. Luk and Dr. Alexander Djordjevich

Aims/Objectives  
The aim of the project is to develop a small sensor-rich six-legged robotic insect for walking gait research. The robot should be able:

- to handle rough terrain  
- to avoid static and moving obstacles  
- to adapt its walking gaits automatically for different terrain

Required Manpower: 3 or 4

Subdivision of Works:

(1) Design and development of mechanical structure  
The project team is required to design and develop the body structure and the leg mechanism of the robot in order to provide the mobility for the robot to handle various terrain.

(2) Sensing system  
The project team is required to develop a sensing system for obstacle avoidance and detection. It is envisaged that the sensing system will be a combination of infrared, ultrasonic and tactile sensors. In addition, each leg may also require contact sensor to ensure a good contact with its terrain.

(3) On-board computer system  
To develop the machine intelligence for the robot, the project team is required to use the BASIC Stamp or other low cost microcontrollers to develop a distributed computer system.

(4) Walking gaits design and development  
Legged vehicles have the advantage over traditional wheeled vehicles is that they are capable of travelling on virtually any type of terrain and hence can be used in hazardous and unstructured environments. To realise the full advantage of the robot, efficient walking gaits are essential. In this project, the team is required to develop different walking gaits for various terrain.

Project Budget:  
Project subsidy = HK$ 8,000

<table>
<thead>
<tr>
<th>Breakdown</th>
<th>HK$</th>
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<tbody>
<tr>
<td>Mechanical parts</td>
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<td>Computer and microcontrollers</td>
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<td>Sensors</td>
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<td>Motors</td>
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