3806ICT - Week 3 Lab

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Question 1

Give definitions of locomotion and manipulation. What are their shared features and differences?

Question 2

What are advantages and disadvantages of legged robots?

Question 3

What is DOF? If a robot can only move forward and backward, how many DOFs does it have? In most cases, how many DOFs does a robot leg has?

Question 4

What is a gait of a legged robot? Enumerate all lift and release events of a robot with 4 legs. Give two examples of gaits for such a robot.

Question 5

Formulate the Monkey and Banana Problem in STRIPS:A monkey is at location A in a lab. There is a box in location C. The monkey wants the bananas that are hanging from the ceiling in location B, but it needs to move the box and climb onto it in order to reach them

Question 6

Evaluate the subsumption architecture in terms of: support for modularity, niche targetability, ease of portability to other domains, robustness

Question 7

Describe the Hybrid paradigm in terms of: (a) sensing, acting, and planning, and (b) sensing organization.

Question 8

Look up technical reports on Shakey. Compare Shakey with the Hybrid architectures. Now consider the possible impact of the radical increases in processing power since the 1960's. Do you agree or disagree with the statement that Shakey would be as capable as any Hybrid if it were built today? Justify your answer.