COMP105P Lab Tasks 3

Tasks

The Tower of Hanoi is a mathematical puzzle. It consists of three pegs, and a number of disks of different sizes which can slide onto any peg. The puzzle starts with the disks in a neat stack in ascending order of size on one peg, the smallest at the top, thus making a conical shape.

The objective of the puzzle is to move the entire stack to another peg, obeying the following simple rules:

1. Only one disk can be moved at a time.
2. Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.
3. No disk may be placed on top of a smaller disk.

Preparation: See an animation here of the tower of Hanoi algorithm:
https://www.youtube.com/watch?v=5Wn4EboLrMM

- **Task 3.1**. Implement the tower of Hanoi algorithm using the robot board. The user should be able to provide two parameters *n* (number of disks) and one of three letters *A, B* or *C* representing the first peg where all the disks are initially stacked. *'A'* for the right peg, '*B'* the one at the center, and, '*C'* the one on the left.
  Your code should ne able to display the content of each peg for each iteration of the algorithm.

  Note: For tasks 3.1, the robot 3-position switch should be set to position 1 (no need for the servos).

- **Task 3.2**. Get the robot to solve the tower of Hanoi puzzle (at least three disks). It is up to you how to make the robot signal a move of a disk from a peg to another and how to signal the end of the algorithm.

  Your code should work whatever is the initial peg (the right one, middle or left).

  Note: For task 2.3, the 3-position switch of the robot should be set to position 2 after loading the code to EEPROM as the servos are needed for this task.