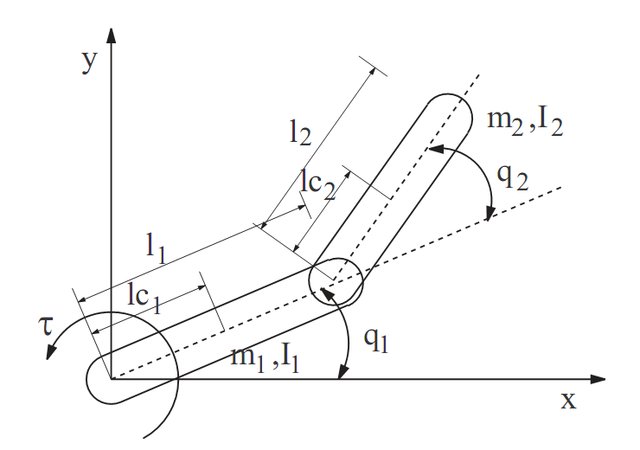


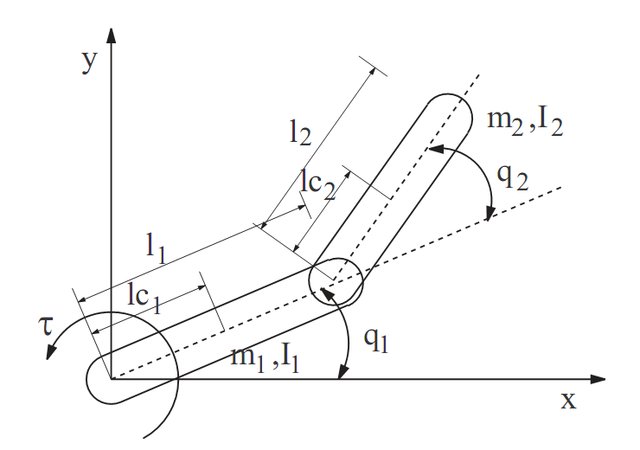
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| MCTR903 |
| **The Pendubot** |
| Project Proposal |

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| Proposed by: 1. Mona Elboughdady ID: 43-16697  2. Ahmed Zaghloul ID: 43-1  3. Bishoy Atef ID: 43-  4. John Gameel ID: 43-  5. Abdo Saad ID: 43-  Proposed to: Prof. Ayman Elbadawy  10-19-2021 |



**The** **Pendubot**

The Pendubot system is a 2-link underactuated planar system (which has fewer number of actuators than the degrees of freedom). It has a single actuator at the base joint while the second joint between the two links is unactuated and can swing freely. This system is mainly used for research and education to study the underactuated robotic systems. The main goal is to swing up and balance the robot about the unstable upright position (where both links are in the vertically up configuration). The swing up and balancing techniques are done by either one controller or two controllers and switching is done between the two controllers.



**The system inputs**

The input to the system is the torque applied from the motor.

**The system outputs**

The system output is the angular positions and the angular velocities of the two links.