**KINEMATIC MODELING AND ANALYSIS OF A 5DOF ROBOTIC LEG**

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**DERIVATION**

Forward Kinematic Analysis:

Table 1: D-H Parameters for 5 DOF Robotic Leg

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Joint i** | **Label** | **(mm)** | **(mm)** | **(mm)** | **(mm)** |
| 0 | Hip (X) |  |  |  |  |
| 1 | Hip (Y) |  |  |  |  |
| 2 | Knee (Y) |  |  |  |  |
| 3 | Anke (Y) |  |  |  |  |
| 4 | Ankle (X) |  |  |  |  |

Given:

|

The joint transformation matrices describing the position from each joint:

Each joint matrix transformation matrix,

Solving for each joint position,

**| |**

And the end effector position matrix,