Contents

Experiment 6 :Study Transfer Function of an armature controlled DC Motor

```
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clc;
```
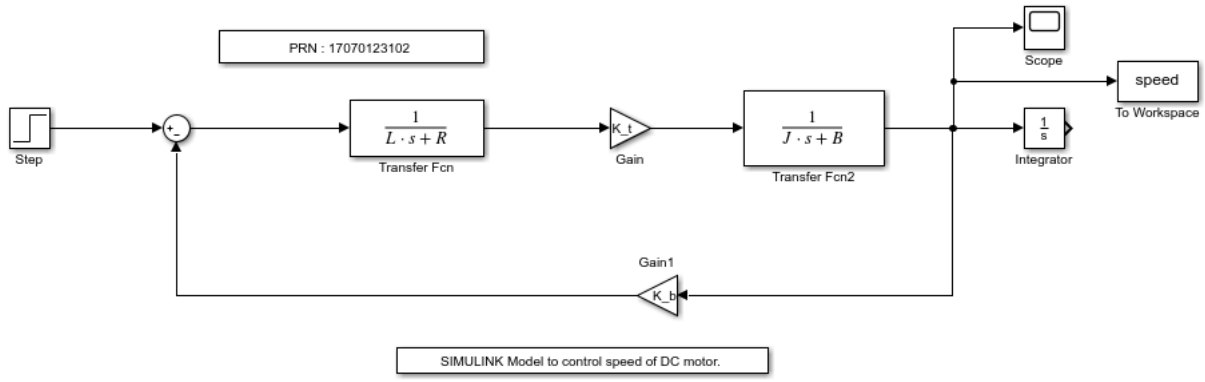

Declaring Variables for Armature Controlled DC Motor

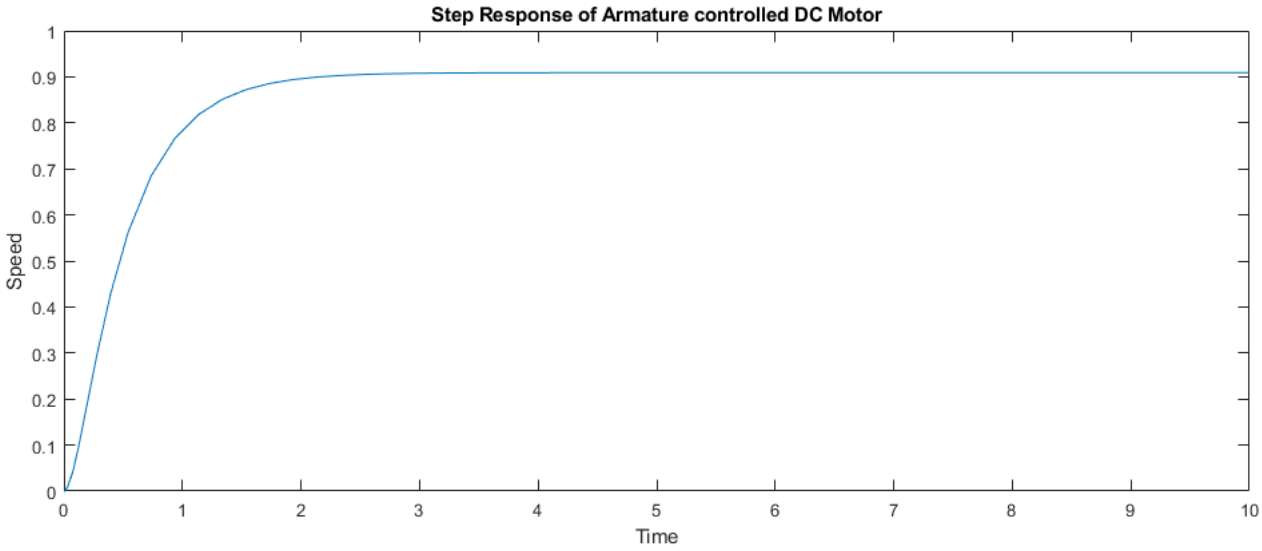
```
L = 0.5; %Electric Inductance
R = 1;   %Electric Resistance
K_t = 0.1; % Motor torque constant
K_b = 0.1; % Back emf constant
B = 0.1;
J = 0.01; % Moment of Inertia

figure()
ckt = imread('06cs.PNG');
imshow(ckt)
```



Simulating and Visualizing response of Armature Controlled DC Motor

```
sim('exp06.slx')
plot(tout,speed)
title('Step Response of Armature controlled DC Motor')
xlabel('Time')
ylabel('Speed')
```

```
Warning: Output port 1 of '<a href="matlab:open_and_hilite_hyperlink
('exp06/Integrator','error')">exp06/Integrator</a>' is not connected.
```



Tasks Performed in the experiment :

In this experiment, we derived the transfer function of an Armature Controlled DC Motor. We declared variables in the Workspace by simulating & visualizing speed response of Armature Controlled DC Motor. The speed vs time response was observed.

Conclusion:

```
%In this project the speed of the DC motor is controlled by the armature.
%
%The principle of operation used in this motor is electromagnetism.
%Whenever a conductor that is carrying some current is placed in an external
%magnetic field a force will be experienced by it. This force generated is
%proportional to the current flowing in the conductor and also on the
%strength of the external magnetic field.
%
% Thus, the step response of armature controlled DC Motor was observed.
```

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