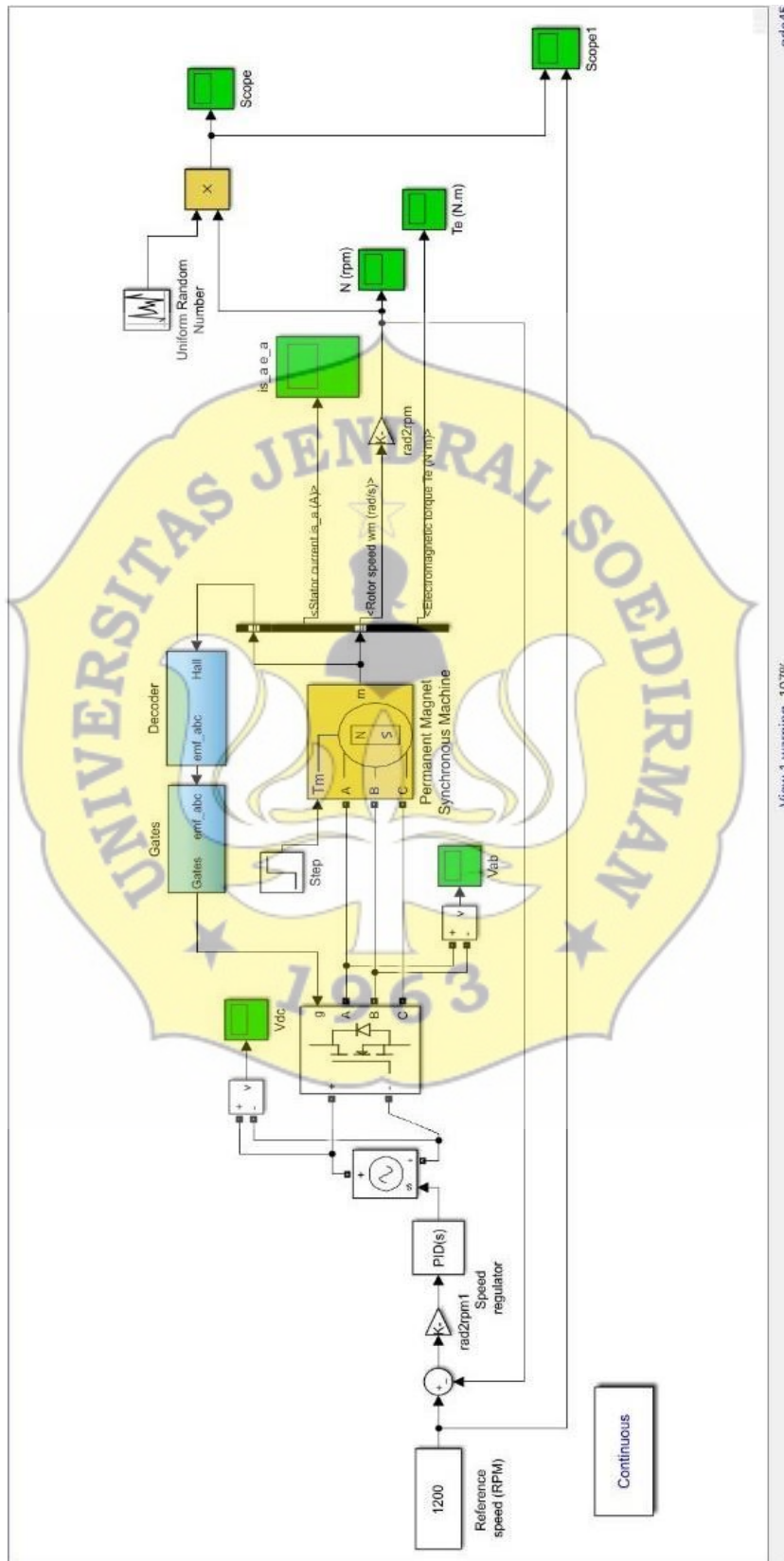


## LAMPIRAN

### Lampiran 1. Program MATLAB untuk menentukan garis tangen pada titikinfleksi

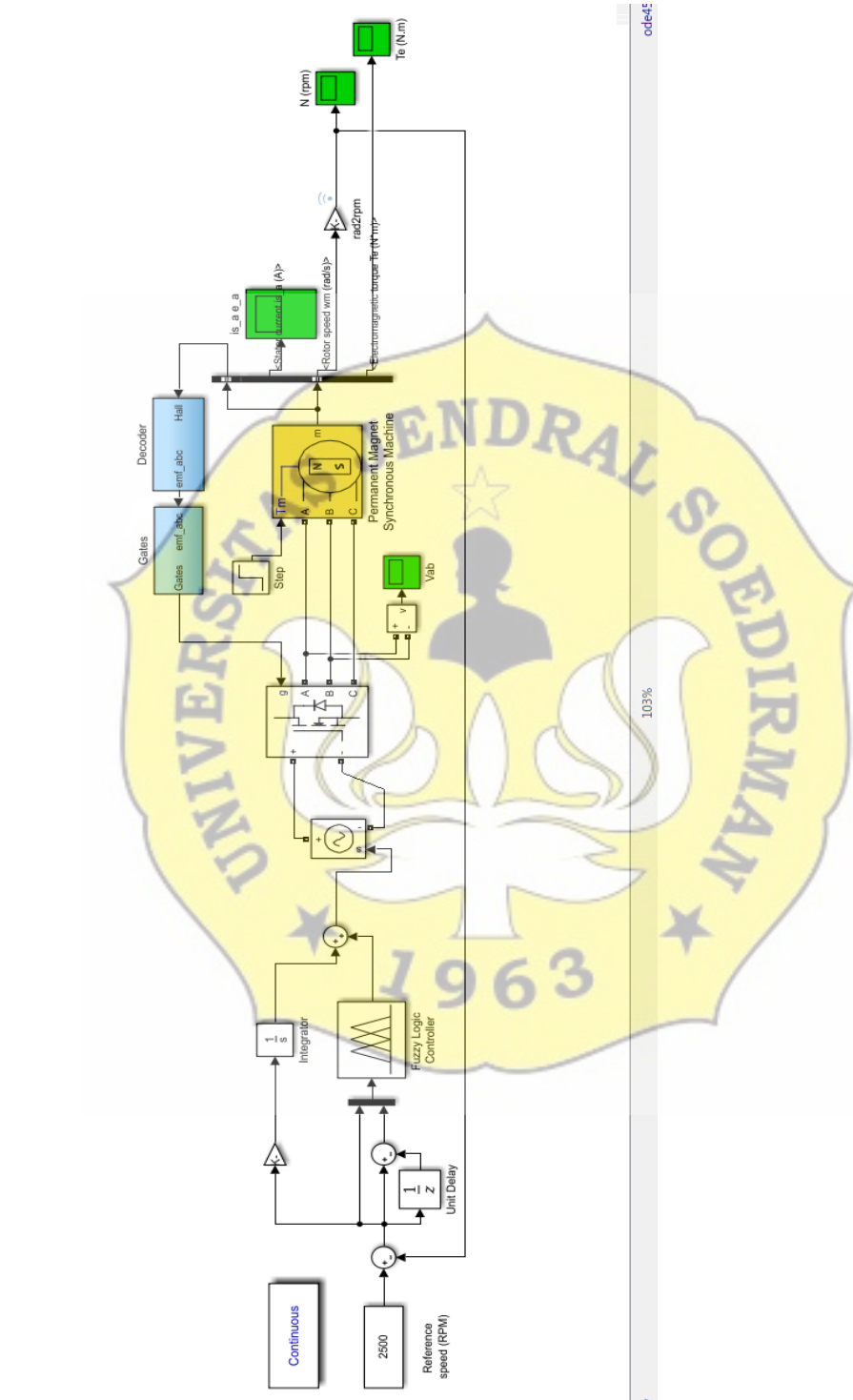
```
s = tf('s');
SYS = 5.7142/(0.000002176*s^2+0.00056272*s+0.5607);
[Y,time] = step(SYS);
K = Y(end);
L_index = find(Y>=0.25*K,1);
L = time(L_index);
T_index = find(Y>=(1-exp(-1))*K,1);
T = time(T_index);
D = diff(Y)./diff(time);
inflex = find(diff(D)./diff(time(1:end-1))<0,1);
A = D(inflex)*time(inflex)-Y(inflex);
tangent = D(inflex)*time - A;
step (SYS);
hold on;
plot(time,tangent,'r','linewidth',1.5);
plot(L,Y(L_index),'*');
plot(T,Y(T_index),'*');
```

Lampiran 2 Rangkaian Simulasi Motor BLDC PID Pada Simulink

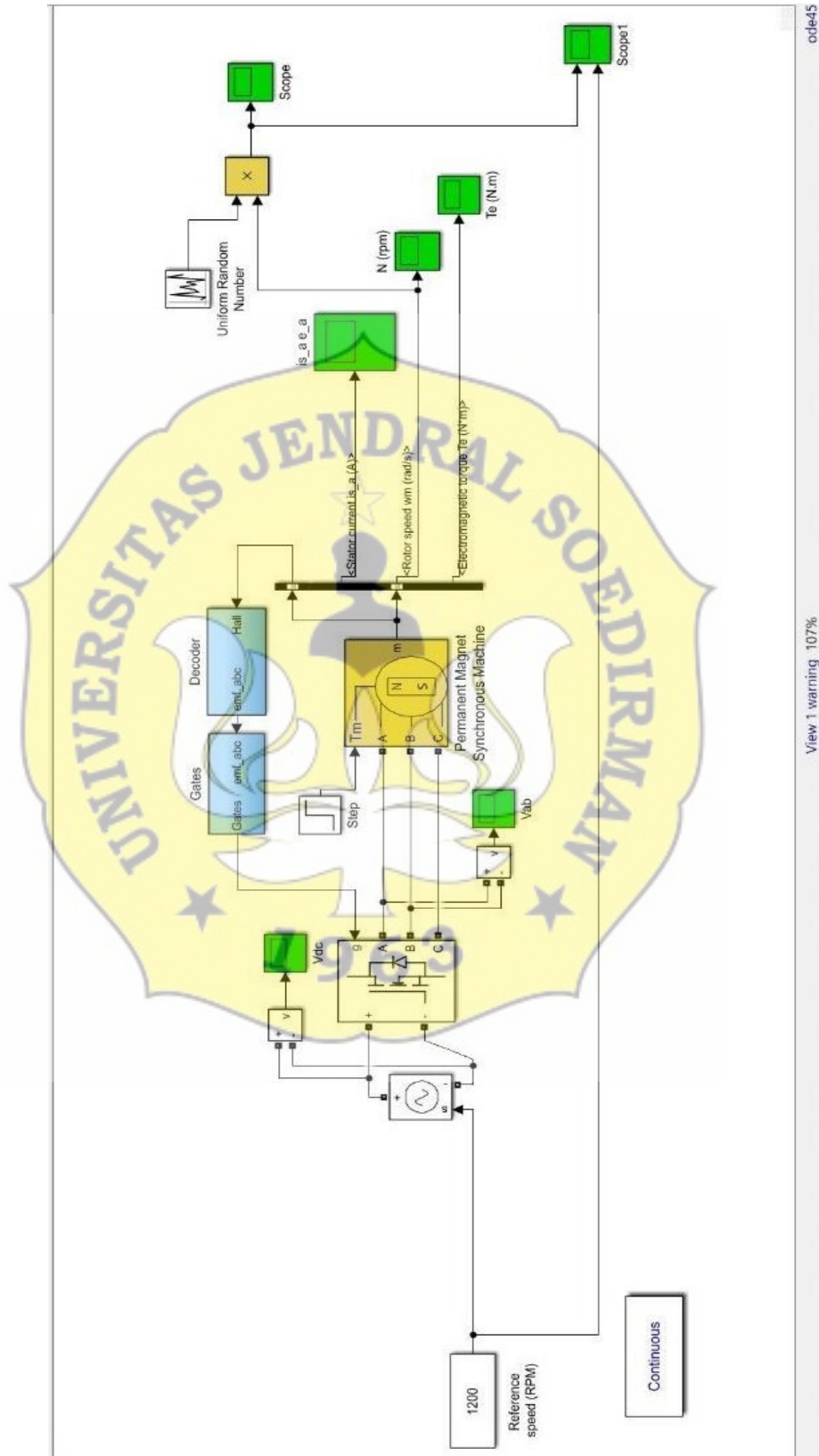


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Lampiran 3 Rangkaian Simulasi Motor BLDC Fuzzy Pada Simulink



Lampiran 4 Rangkaian BLDC Tanpa Kontroller



ode45

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