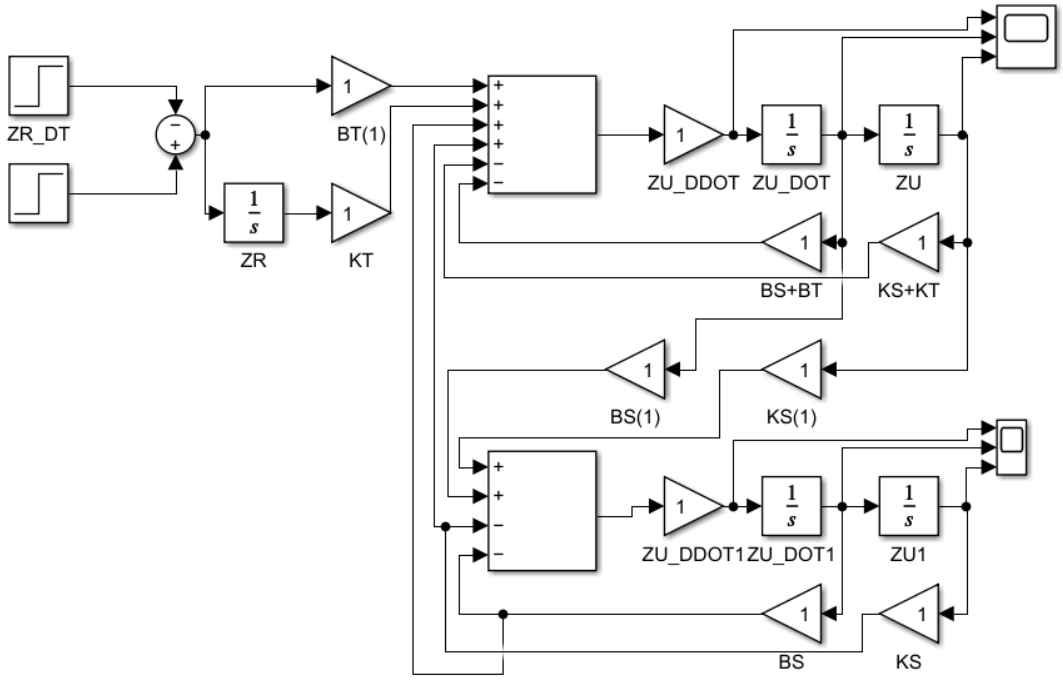
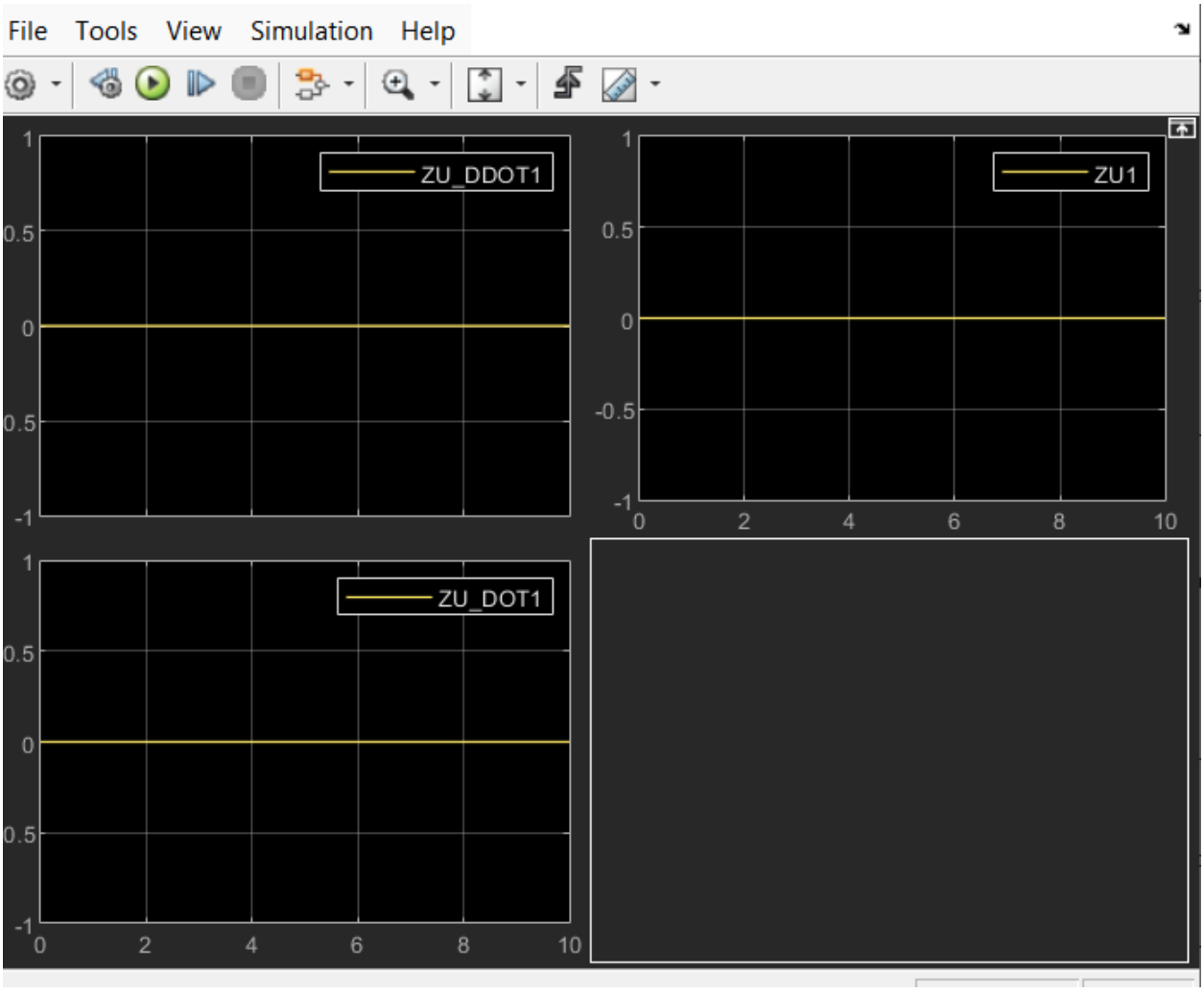
----------<(M File)>----------

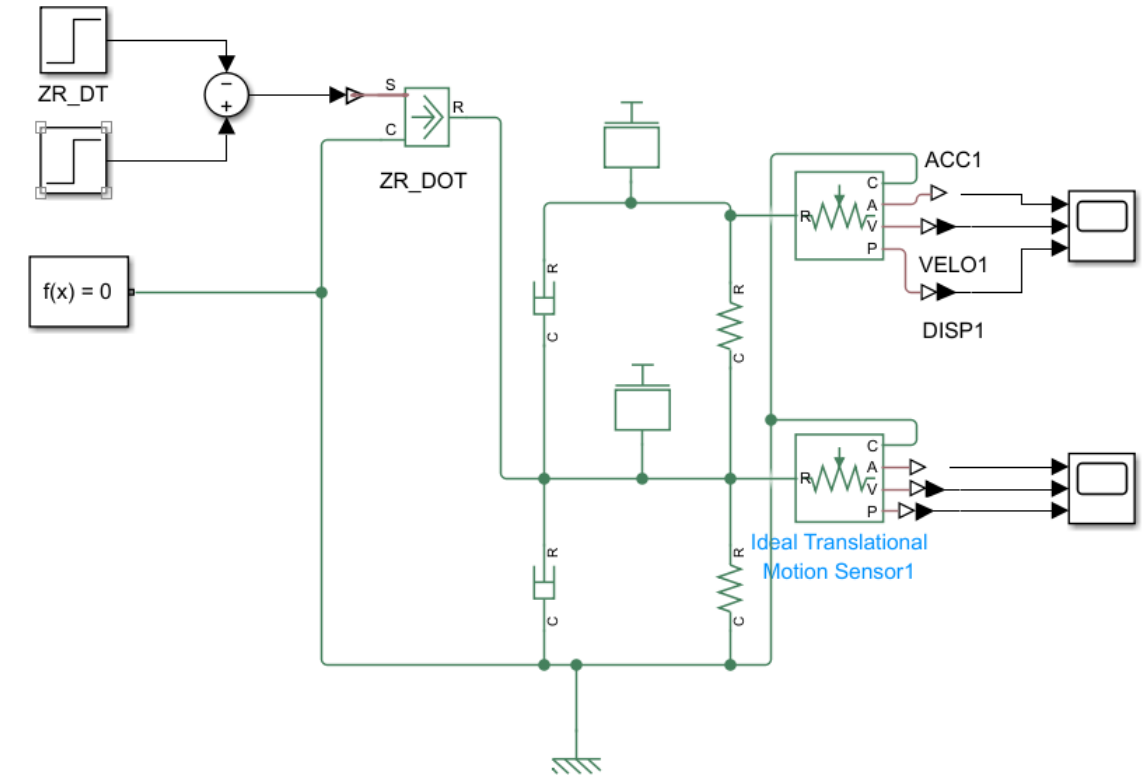
```
syms s zrdot

A=[(mu*s^2+(bs+bt)*s+ks+kt) , -(ks+bs*s) ; -(ks+bs*s) , (ms*s^2+ks+bs*s)];

B=[(kt/s+bt)*zrdot;0];

C=A\B;

zs=C(1);

G=zs/zrdot;

G=collect(G,s);

[num,den]=numden(G);

num=sym2poly(num);den=sym2poly(den);

num=num/den(1); %dividing by den(1) means dividing by the leading coefficient of denominator i.e., 20 in this case. Done to match the outputs.

den=den/den(1);

G=tf(num,den)
```

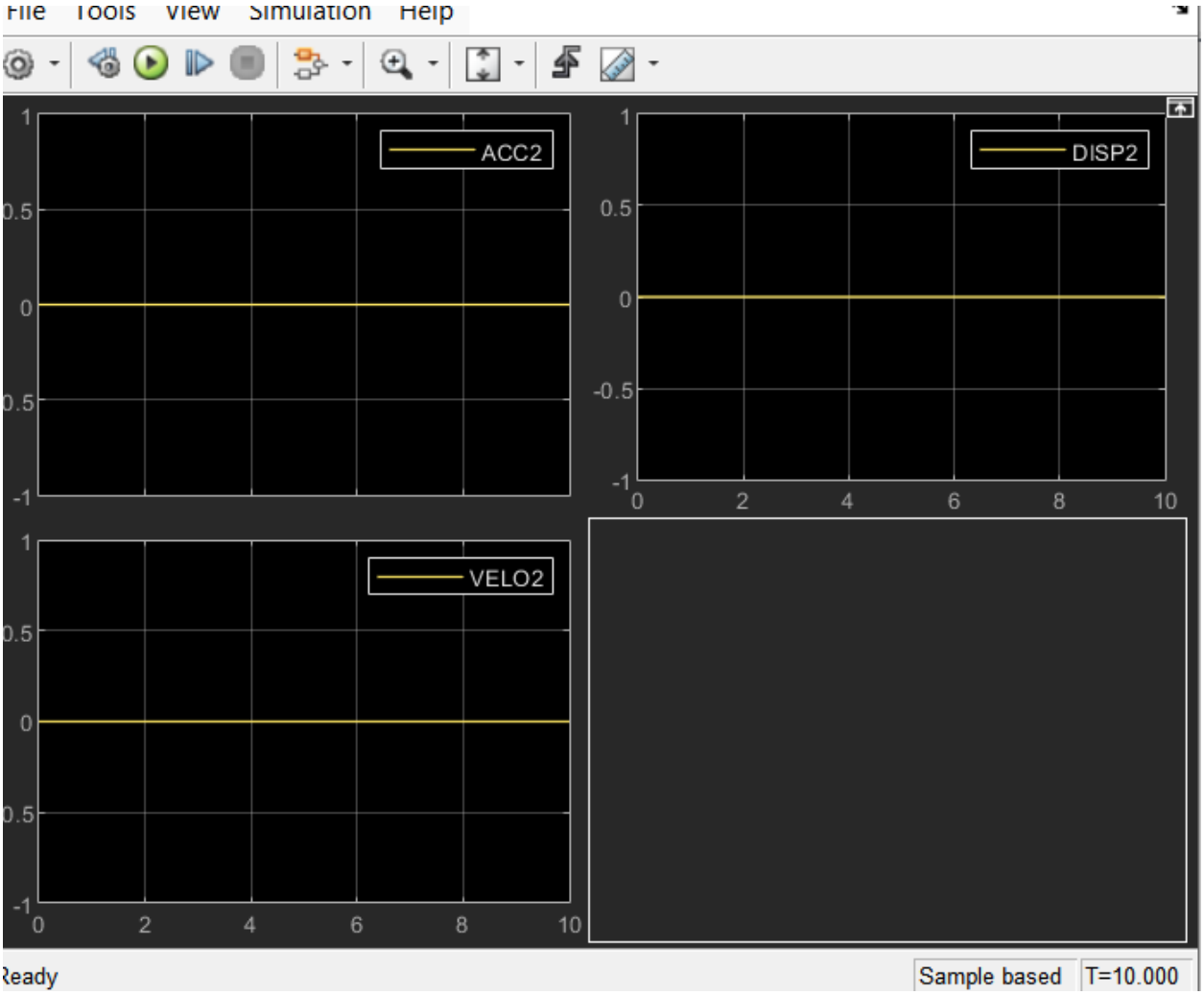
----------<(Simulink)>----------


ZR_DT
BT(1)
ZR
KT
ZU_DDOT
ZU_DOT
ZU
BS+BT
KS+KT
BS(1)
KS(1)
ZU_DDOT1
ZU_DOT1
ZU1
BS
KS


File
Tools
View
Simulation
Help
ZU_DDOT1
ZU1
ZU_DOT1

----------<(SIMSCAPE)>----------


ZR_DT
S
C
R
ZR_DOT
f(x) = 0
ACC1
VELO1
DISP1
C
A
V
P
R
C
Ideal Translational
Motion Sensor1


File Tools View Simulation Help
ACC2
DISP2
VELO2
1
0.5
0
-0.5
-1
0
2
4
6
8
10
Ready
Sample based
T=10.000