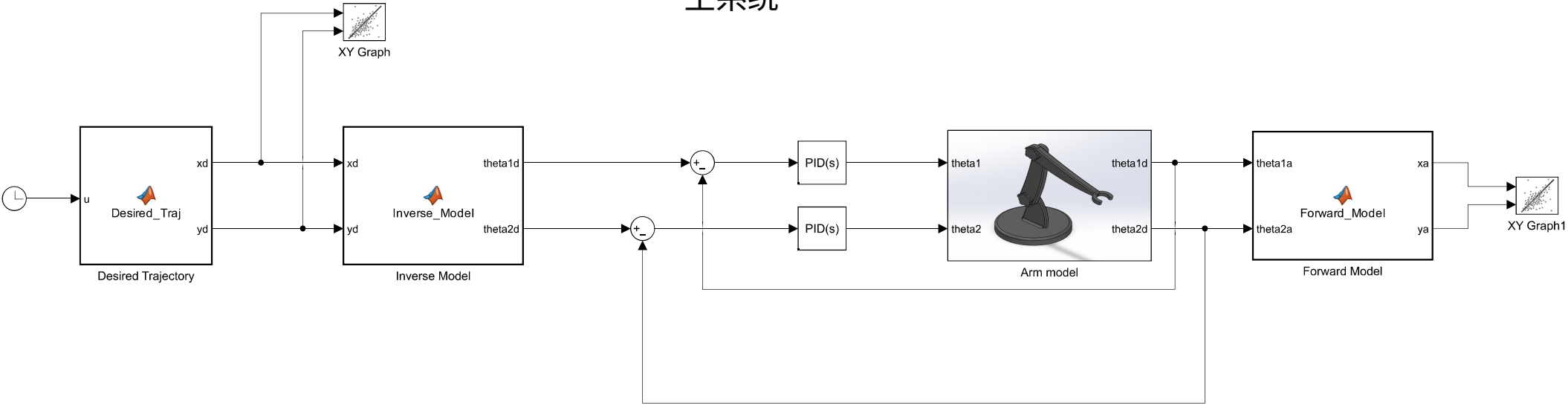
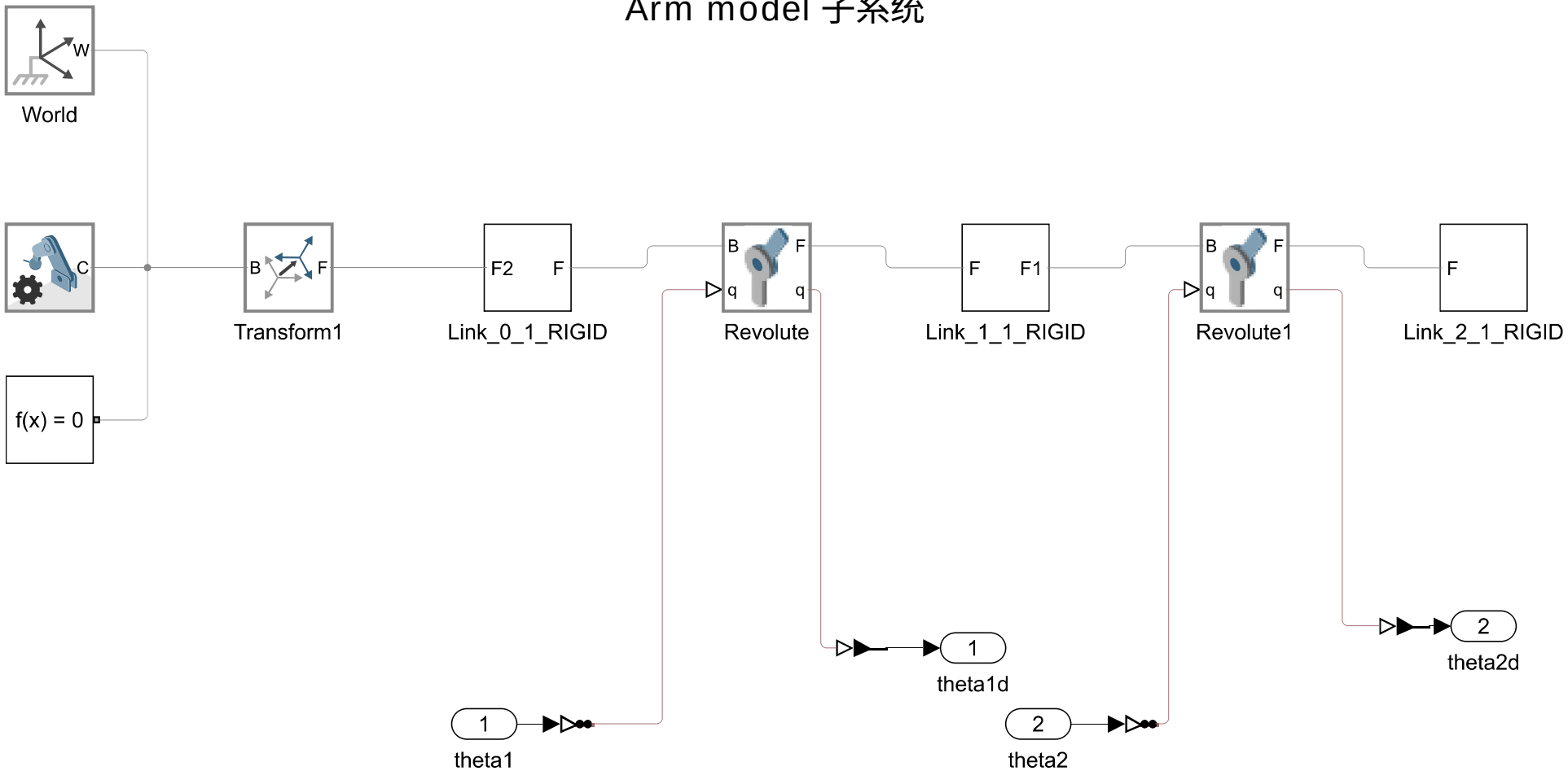
主系统


XY Graph
u
xd
yd
Desired_Traj
Desired Trajectory
xd
yd
theta1d
theta2d
Inverse_Model
Inverse Model
+
-
PID(s)
PID(s)
theta1
theta2
theta1d
theta2d
Arm model
theta1a
theta2a
xa
ya
Forward_Model
Forward Model
XY Graph1

Arm model 子系统



```
function [xd,yd] = Desired_Traj(u)

xd = 1+0.5*sin((2*pi/5)*u+pi/2);
yd = 1+0.5*cos((2*pi/5)*u+pi/2);
```

```
function [xa,ya] = Forward_Model(theta1a,theta2a)
l1 = 1;
l2 = 1;
xa = l1*cos(theta1a)+l2*cos(theta1a+theta2a);
ya = l1*sin(theta1a)+l2*sin(theta1a+theta2a);
```

```
function [theta1d,theta2d] = Inverse_Model(xd,yd)
l1 = 1;
l2 = 1;
theta2d = acos((xd^2+yd^2-l1^2-l2^2)/(2*l1*l2));
theta1d = atan(yd/xd)-atan((l2*sin(theta2d))/(l1+l2*cos(theta2d)));
```