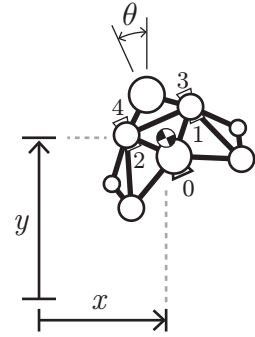


Initial program for getting HumBird started

```
//-----  
// Humbird  
//-----  
void Pilot::humBirdInit()  
{  
    setLevel(1);  
}  
  
void Pilot::humBirdUpdate()  
{  
    double theta = dat.getAngle();  
    double thetaDot = dat.getAngleDot();  
    double tgx = getXtg();  
    double tgy = getYtg();  
  
    double mainThrustSignal;  
    double rollSignal;  
  
    mainThrustSignal = getStickVR();  
    rollSignal = -getStickHL();  
  
    send(0,mainThrustSignal); // main thruster  
    send(1,rollSignal); // lower right thruster  
    send(2,-rollSignal); // lower left thruster  
    send(3,-rollSignal); // upper right thruster  
    send(4,rollSignal); // upper left thruster  
  
    msg.set(0,"xError",tgx-getX());  
    msg.set(1,"yError",tgy-getY());  
}
```



HumBird Nominal (Level 1) Parameters

$m = 18.7 \text{ kg}$
 $g = 2.0 \text{ m/s}^2$
 $I_G = 170.342 \text{ kg m}^2$
 $T_{\max} = 100 \text{ N}$
 $M_{\max} = 120 \text{ N m}$