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```matlab
function followball()
```

ROS setup

```matlab
%Publisher
RefPub = rospublisher('reference','geometry_msgs/Vector3');
RefMsg = rosmessage('geometry_msgs/Vector3');


%Subscriber
ball_pos = rossubscriber('/object_update');
sub = rossubscriber('/encoder','geometry_msgs/Vector3');

Error using followball (line 5)
The global ROS node is not initialized. Use "rosinit" to start the
 global node and connect to a ROS network.
```

SETUP IK

```matlab
[gik, posTgt, jointConst, robot, ~ ,  ~]=setupIK();
```

MAIN

```matlab
obj_index = 1;

while true
    %Find ball
    coords = receive(ball_pos,1);
    posTgt.TargetPosition = [coords.Objects(obj_index).X/1000;
 coords.Objects(obj_index).Y/1000; coords.Objects(obj_index).Z/1000];

    %ik
    [q,~] = gik(homeConfiguration(robot),posTgt, jointConst); %Inverse
 Kinematics
    jointstates(1) = -q(1).JointPosition; jointstates(2) =  -
q(2).JointPosition; jointstates(3) = -q(3).JointPosition;

    %publish motion
    RefMsg.X = jointstates(1);
    RefMsg.Y = jointstates(2);
    RefMsg.Z = jointstates(3);
    send(RefPub,RefMsg);
```

```
end

end
```

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