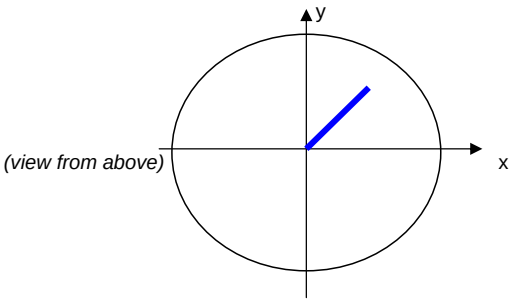
3D / 4DOF Inverse Kinematics

We use the 2D/3DOF algorithm
In which we rename the y axis to z axis
We choose a T(x,y,z) target



start with the calculation of the angle of the origin servo
servo_O = atan(Ty/Tx)

then a projection of the AT vector on the ground
$AT = sqr(Tx^2+Ty^2)$

AT will be the Tx of the 3DOF algorithm
Tz will be the Ty of the 3DOF algorithm

We have the 4 servo positions