WHERE_ROBOT

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Retorna a posição da ferramenta do robô com relação ao sistema da estação

Calling Syntax

```
function  [trels] = where_robot(theta,trelw,srelb,L)
```

I/O Variables

```
|IN Double Matrix| *theta*: _joint angles_  [theta1 theta2 theta3]
|IN Double Matrix| *trelw*: S rel to W  Homogeneous Transformation
Matrix 4x4
|IN Double Matrix| *srelb*: S rel to B  Homogeneous Transformation
Matrix 4x4
|IN Double Matrix| *L*: link lenghts  [L1 L2 L3] [meters meters meters]

|OU Double Matrix| *arelb*: _Internal form_  Homogeneous Transformation
Matrix 4x4
```

Example

```
L = [0.5 0.3];
theta = [0 90 -90];
srelb = utoi([-0.1, 0.3, 30]);
trelw = utoi([0.1 0.2 30]);
[trels] = where_robot(theta,trelw,srelb,L)
```

Hypothesis

Braço planar RRR

Function

```
function [trels]=where_robot(theta,trelw,srelb,L)
    wrelb = kin(theta,L);
    brels = tinvert(srelb);
    trels = brels*wrelb*trelw;
end
```

```
trels =

    1.0000         0         0    0.7062
         0    1.0000         0   -0.1768
         0         0    1.0000         0
         0         0         0    1.0000
```

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