$$\left[egin{array}{c} x_p \ y_p \end{array}
ight] = \left[egin{array}{ccc} 1 & 0 & L\cos\phi \ 0 & 1 & L\sin\phi \end{array}
ight] \left[egin{array}{c} x \ y \ z \end{array}
ight]$$