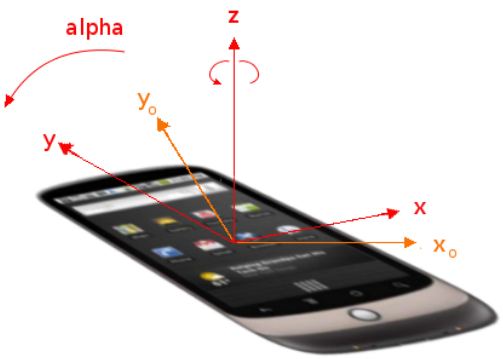
The coordinate system and Euler angles

The transformation from the Earth coordinate frame to the device coordinate frame uses the following system of rotations.

Rotations use the right-hand convention, such that positive rotation around an axis is clockwise when viewed along the positive direction of the axis. Starting with the two frames aligned, the rotations are applied in the following order:

FIRST EXAMPLE: ROTATE THE DEVICE FRAME AROUND ITS Z AXIS BY ALPHA DEGREES, WITH ALPHAIN [0, 360]

Device in the initial position, with Earth (XYZ) and body (xyz) frames aligned.	
Device rotated through angle alpha about z axis, with previous locations of x and y axes shown as x_0 and y_0.	

SECOND EXAMPLE: ROTATE THE DEVICE FRAME AROUND ITS X AXIS BY BETA DEGREES, WITH BETA IN [-180, 180]

Device in the initial position, with Earth (XYZ) and body (xyz) frames aligned.	
Device rotated through angle beta about new x axis, with previous locations of y and z axes shown as y_0 and z_0.	

THIRD EXAMPLE: ROTATE THE DEVICE FRAME AROUND ITS Y AXIS BY GAMMA DEGREES, WITH GAMMAIN [-90, 90]

Device in the initial position, with Earth (XYZ) and body (xyz) frames aligned.	
Device rotated through angle gamma about new y axis, with previous locations of x and z axes shown as x_0 and z_0.	

	 y gamma z_o z x_o x