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## Simple Accelerometer Data Conversion to Degrees

Here is a handy lua Corona Labs code chunk to convert xyz accelerometer data to degrees.

I am building an augmented reality app that needs to know when the user tilts and rolls a phone around so it can update the user interface with augmented reality elements. Corona already has the accelerometer acquisition code but now I want to display this data in human readable degrees (e.g if you were looking half way up the sky you would expect 45° and the horizon 0°)

A shout out goes to Doug McFarland here for the original c/Arduino code (<http://wizmoz.blogspot.com.au/2013/01/simple-accelerometer-data-conversion-to.html>) that I converted to Lua.

**Code:**

```
--Input Data
local xAxisData = --insert xaxis sensor data
here
local yAxisData = --insert yaxis sensor data
here
local zAxisData = --insert zaxis sensor data
here
--Convert raw 0.0 - 1.0 sensor data to degrees.
local xAngle = math.atan(tonumber(xAxisData)
/ (math.sqrt((tonumber(yAxisData) * tonumber(yAxisData))
+ (tonumber(zAxisData) * tonumber(zAxisData))))
local yAngle = math.atan(tonumber(yAxisData)
/ (math.sqrt((tonumber(xAxisData) * tonumber(xAxisData))
+ (tonumber(zAxisData) * tonumber(zAxisData))))
local zAngle = math.atan(math.sqrt((tonumber(xAxisData)
* tonumber(xAxisData)) + (tonumber(yAxisData)
* tonumber(yAxisData))) / tonumber(zAxisData))
xAngle = xAngle * 180.00
yAngle = yAngle * 180.00
zAngle = zAngle * 180.00
xAngle = xAngle / 3.141592
yAngle = yAngle / 3.141592
zAngle = zAngle / 3.141592
--Round down a bit and display
print("X Degrees: " .. tostring( math.round(x
Angle,1)) .. " (Original X: " .. tonumber(xAxisData) ..
")")
print("Y Degrees: " .. tostring( math.round(y
Angle,1)) .. " (Original Y: " .. tonumber(yAxisData) ..
")")
print("Z Degrees: " .. tostring( math.round(z
Angle,1)) .. " (Original Z: " .. tonumber(zAxisData) ..
")")
```

**Output Data:**

Accelerometer X Data: -0.0264 = -1&deg  
Accelerometer Y Data: -68 = -68&deg  
Accelerometer Z Data: 0.3682 = 68&deg

**Comments:**

This does not look too handy to some but this is gold in plotting the horizon and calculating far away objects with trigonometry.

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