CyWee Phone API Reference

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Revision History

Version	Description	Author	Date
1.0	* First Version	Henry, Tigran	2009/9/25
1.1	* Modify some data type of structure cywee_data_t, * Fix Figure notation error * MR sensor Figure error	Henry	2009/9/29
1.2	* Modify API definition to fit CyWee Spec * Reserve some API for future release * Modify API to JNI style	Henry, Tigran	2009/12/22
1.3	* Add PC game application API	Henry, Tigran	2009/12/25
1.4	* Change API interface * Change motion API output	Henry, Tigran	2010/4/7
1.5	* Separated **JNI** and **Middleware API** descriptions. * **Added new APIs for** JNI :setMotionThresholdValueFactor, setShakeMotionThresholdValueFactor and getLibVersion. ***Added new API for middleware:** CYWEE_Control_set_motion_threshold_value_factor, CYWEE_Control_set_shake_motion_threshold_value_factor.	Henry, Tigran	2010/04/16

Introduction

1.1 CyWee Motion Recognition Tech.

1.1.1 Usage

The CyWee motion recognition technology can provide the motion recognition result and 9-axis sensor rawdata output (3-axis accelerometer + 3-axis gyroscope + 3-axis magnetic sensor) by using a 3-axis accelerometer (Ax, Ay, Az), a 2-axis gyroscope (Gwx, Gwz) and a 3-axis (Mx, My, Mz) magnetic sensor. The phone coordinate is shown in figure below:

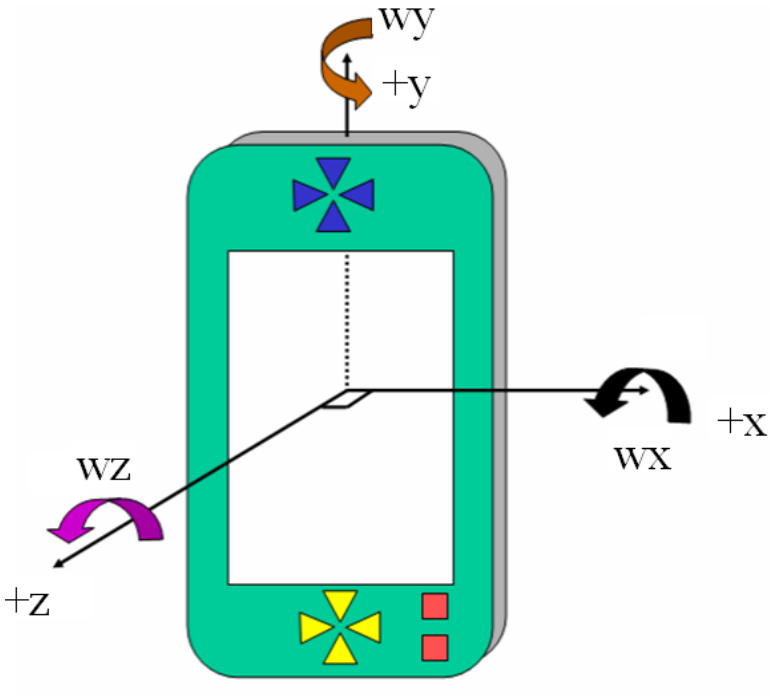

Figure 1

3-axis accelerometer (Ax, Ay, Az) contains Ax, Ay and Az sensing axes. Each sensing axis aligns to the phone coordinate. The Ax's "x" means aligning to phone coordinate +x. The Ay's "y" means aligning to phone coordinate +y. The Az's "z" means aligning to phone coordinate +z. The gyroscope's Gwx means aligning to phone coordinate +wx. Gwy means aligning to phone coordinate +wy. Gwz means aligning to phone coordinate +wz. The magnetic sensor's Mx means aligning to phone coordinate +x. My means aligning to phone coordinate +y and Mz means aligning to phone coordinate +z.

1.1.2 Protocol

All sensors' rawdata can be got from the CyWee library. These data format maybe become different from the original rawdata got directly from each sensor through I2C interface.

1.2 CyWee API introduction

CyWee provides the API library to access the CyWee sensors data from *middleware* and *Java applications* as well. The library name is **libcywee_sensorapi_vX.Y.so**, where X and Y are the major and minor versions of the library. Library can be linked as a shared library to the middleware application development and also can be use as JIN library for Java APK developers. For Java APK developers CyWee also provides additional helper Java package **cywee.sensor.api** to manage the sensors data.

API is classified into several modes. They are ***Rawdata mode***, ***Motion mode***, ***Orientation mode*** and ***PC application mode***.

1.2.1 Raw mode

This API provides all the sensors rawdata. It contains 3-axis accelerometer, 3-axis gyroscope and 3-axis magnetic rawdata.

1.2.2 Motion mode

This API provides the motion recognition results due to the motion of waving the phone in several directions. The motion can be as Figure 2_1~Figure 2_3 showing:

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