**Using SensorManager**

For a compass application, the Android Studio must use a magnetometer. The values of the sensors for the emulator are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Accelerometer (m/s2): | 0.00 | 9.81 | 0.00 |
| Gyroscope (rad/s): | 0.00 | 0.00 | 0.00 |
| Magnetometer (μT): | 0.00 | 5.90 | -48.40 |
| Rotation: | ROTATION\_0 | | |

A cell phone with a compass on the screen

Description automatically generated

The result of the application shows the compass and lets the user know that the phone's orientation is at 0.0 degrees.

**Testing SensorManager**

While testing the SensorManager within the emulator, I had to change the values to the phone orientation. To consider the sensitivity of the compass, I made some minimal changes to the values. These values are:

|  |  |  |  |
| --- | --- | --- | --- |
| Accelerometer (m/s2): | -4.74 | 8.56 | 0.75 |
| Gyroscope (rad/s): | 0.00 | 0.00 | 0.00 |
| Magnetometer (μT): | -44.54 | -18.54 | 7.05 |
| Rotation: | ROTATION\_0 | | |
|  |  | | |

The results of the values change -3.0 degrees, and the compass image rotates ever so lightly. Knowing that it was able to make such subtle changes helped prove that the application is working as intended.

A cell phone with a compass on the screen

Description automatically generated

**Purpose of SensorManager**

The SensorManager houses multiple types of sensors, all with their own purposes. This compass application used the magnetometer. This particular sensor is able to use this sensor to help with the navigation part of the compass. It is also about to be used for certain metal detection. As a whole, the SensorManger provides precise data to the application to be utilized in such a way that the application is meant to be used. Another example of a sensor is the gravity sensor. This is able to help the application distinguish the mobile device’s orientation or motion. This could be useful for different types of games a user may play.

**References**

Dalisay, M. (2015, September 7). *How to create a compass in Android code - source code*. Android Code Ninja. https://www.androidcode.ninja/android-compass-code-example/

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