EXHIBIT A

U.S. Patent No. 8,441,438
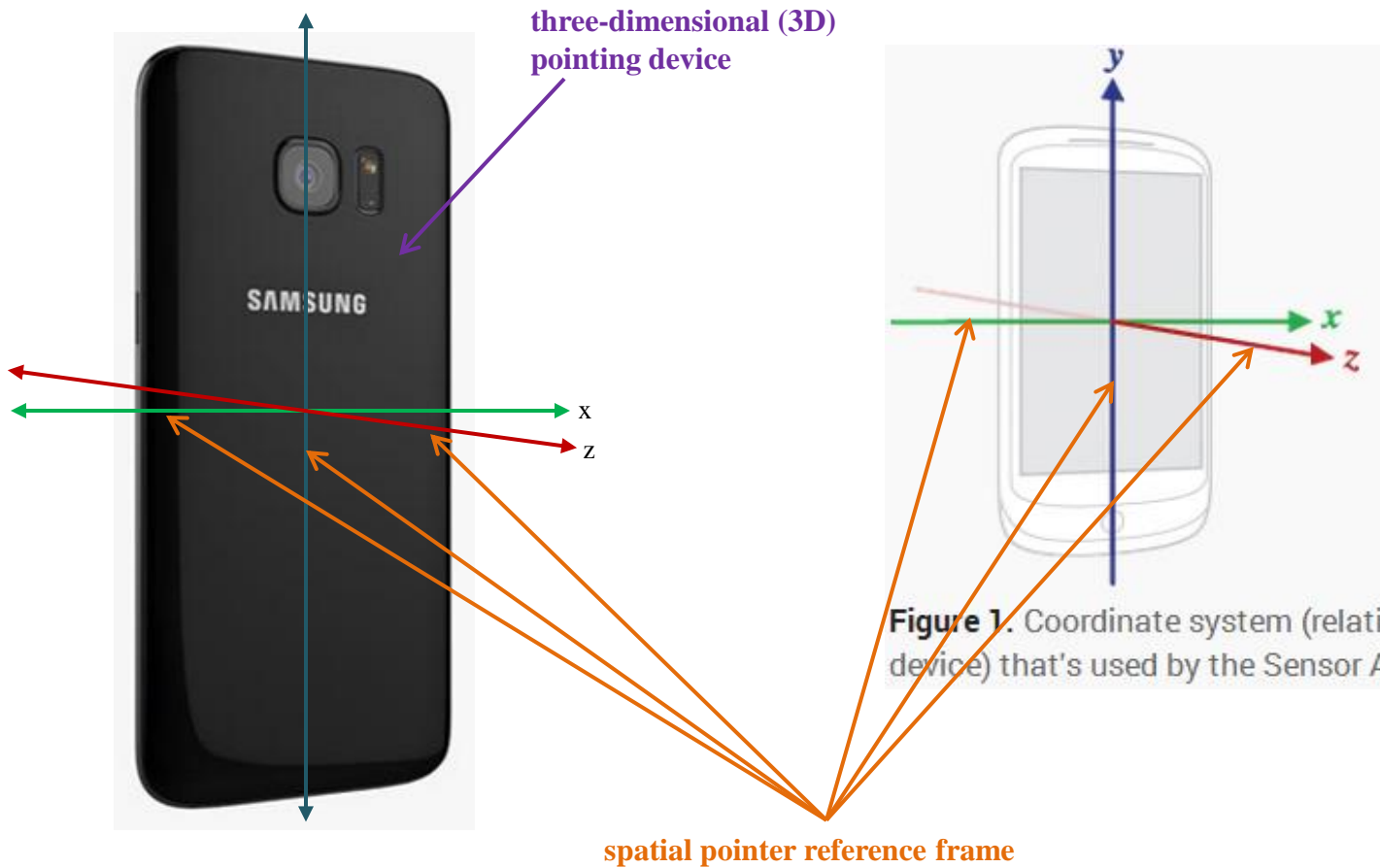
Samsung Galaxy S7 Edge

U.S. Patent No. 8,441,438 – Samsung Galaxy S7 Edge

Claim 14

A method for obtaining a resulting deviation including resultant angles in a **spatial pointer reference frame** of a **three-(3D) pointing device** utilizing a six-axis motion sensor module therein and subject to movements and rotations in dynam environments in said **spatial pointer reference frame**, comprising the steps of:

three-dimensional (3D) pointing device

x

z

Figure 1. Coordinate system (relati device) that's used by the Sensor A

spatial pointer reference frame

Source: http://developer.android.com

Claim 14
A method for obtaining a resulting deviation including resultant angles in a spatial pointer reference frame of a three-dir (3D) pointing device utilizing a **six-axis motion sensor module** therein and subject to movements and rotations in dyna environments in said spatial pointer reference frame, comprising the steps of:

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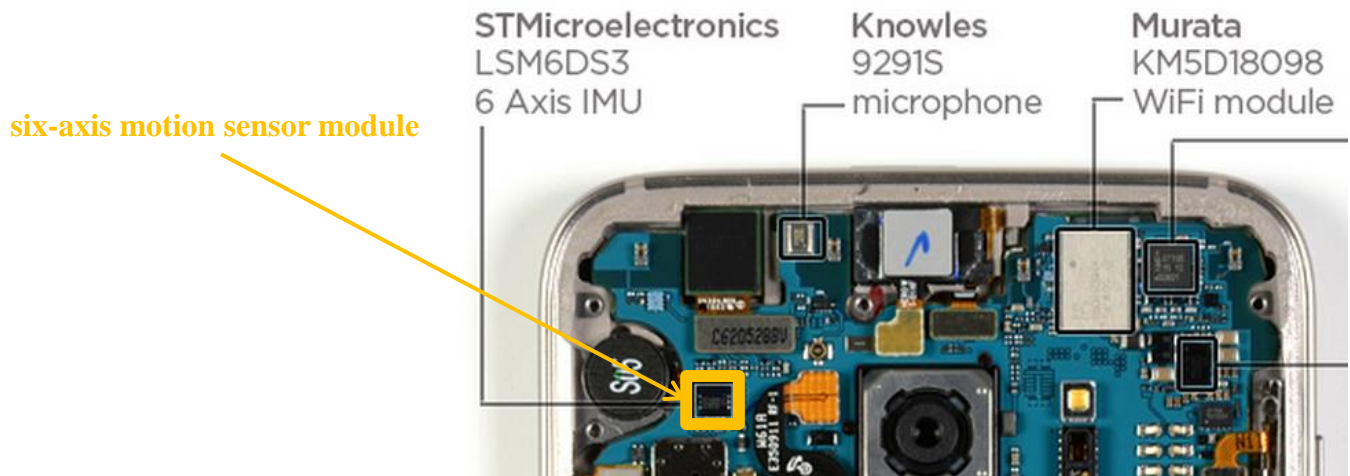
Claim 14

obtaining a **previous state** of the six-axis motion sensor module; wherein the **previous state** includes an initial-value se with **previous angular velocities** gained from the motion sensor signals of the six-axis motion sensor module at a previ

The previous state is obtained through an update program that includes a `predict()` function and an `update()` functic functions that are used to update the global variable x0 based on x0 (the **previous state**) associated with **previous angu** w gained at a previous time T-1 to obtain an updated state x0. The updated state x0 becomes the previous state x0 at tim iteration) of the update program to obtain the updated state x0 at time T.

```
430    void Fusion::predict(const vec3_t& w, float dT)
431         const vec4_t q  = x0;        ⟵  previous state

485             x0 = O*q;
```

```
495    void Fusion::update(const vec3_t& z, const vec3_t& Bi, float
496        vec4_t q(x0);
```

```
529             const vec3_t e(z - Bb);
530             const vec3_t dq(K[0]*e);
531
532             q += getF(q)*(0.5f*dq);        next iterat
533             x0 = normalize_quat(q);
```

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