Senseiii: Sports Assistant

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**ABSTRACT**

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**Author Keywords**

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**ACM Classification Keywords**

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**General Terms**

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# INTRODUCTION

People play sports everyday and is a healthy part of your lifestyle. Our wearable devices will help you in sports. Senseiii is a device that will quantify your motion during a sports session. Whether it be basketball, tennis, golf, or badminton, Senseiii can help make your sports life easier. Senseiii is designed to measure your consistency, record the good shots and bad shots. It will deliver then a statistics to show the user how they are performing for a particular stroke. It also can be used as a scorekeeper for your sports. Although it is important for sports players to keep track of the score, people often forget the score of their game. Senseiii can do that for you so that you can focus on the game!

# BACKGROUND

The core of Senseiii is essentially made up of three components: the IMU (inertial measurement unit), RFduino, and Android application.

## RFduino

An RFduino is a finger-tip sized, Arduino compatible, wireless enabled microcontroller. It sports a ARM Cortex-M0 processor and has a built in Bluetooth 4.0 Low Energy module.

## Inertial measurement unit

The IMU (inertial measurement unit) is commonly used to measure the kinematics of a device. A 6-axis IMU uses a 3-axis accelerometer and a 3-axis gyroscope. The 3-axis accelerometer is a sensor that outputs the acceleration in the x, y, and z direction. Similarly the 3-axis gyroscope is a sensor that outputs the angular speed in the x, y, and z direction.

## Android

Android is a mobile operating system developed by Google. Android is used to provide interaction Senseiii. In addition with the mobile phone, it is used for its processing power. The android phone processes the raw values from the IMU and performs various algorithms to compute the results.

# IMPLEMENTATION METHOD

Sensei has three main components: the RFduino, IMU, and Android application. The RFduino communicates with the IMU via I2C. The RFduino communicates with the Android phone via Bluetooth. Therefore the system is connected from the IMU to the Android phone.

## Hardware

To measure the acceleration and rotation of the device we use the IMU and an RFduino. The IMU uses a 16-bit ADC per axis of measurements. bits to measure in the z direction.

## Software

# RESULTS

# IMPROVEMENTS

# CONCLUSION

# REFERENCES

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