PROJECT PROPOSAL

TymeWear Back-End Data Service

CLIENTELE
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DEV-TEAM
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OBJECTIVE
Implement two-way communication between iOS app frontend and backend service AWS. Allow real-time feedback to the user after data collecting and processing

TASKS
1. Confer with Front-End team and create the JSON data for them to consume
2. Utilize Django and its REST Framework to push JSON data after sending a GET request.
3. Implement security measures (Optional).
4. Deploy back end service onto Amazon Web Services (AWS) and optimize workload balance (Optional).

PRODUCT BACKGROUND
TymeWear is a wearable device for performance measurements in competitive sports. It has three parts: the hardware which is a shirt with sensors for measurements, iOS app as user interface and a web service backend for data processing and communication between each part.

SYSTEM OVERVIEW

References: Juan Morales
**SPECIFICATIONS**

**KEYWORD DEFINITIONS**

A. **Swift**: Swift is a powerful and intuitive programming language for Apple products. ([https://swift.org/](https://swift.org/))

B. **JSON**: JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate. It is based on a subset of the **JavaScript Programming Language**, *Standard ECMA-262 3rd Edition - December 1999*. ([https://www.json.org/](https://www.json.org/))

C. **Service**: A service façade component is used to abstract a part of the service architecture with negative coupling potential. ([https://patterns.arcitura.com/soa-patterns/design_patterns/service_facade](https://patterns.arcitura.com/soa-patterns/design_patterns/service_facade))

D. **Django**: Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. ([https://www.djangoproject.com/](https://www.djangoproject.com/))

E. **PostgreSQL**: PostgreSQL is an object-relational database management system (ORDBMS) based on **POSTGRES, Version 4.2**, developed at the University of California at Berkeley Computer Science Department. ([https://www.postgresql.org/](https://www.postgresql.org/))

F. **Amazon Web Services (AWS)**: An infrastructure web services platform in the cloud for companies of all sizes. ([https://aws.amazon.com/](https://aws.amazon.com/))

G. **Amazon Elastic Compute Cloud (EC2)**: A web service that enables you to launch and manage Linux/UNIX and Windows server **instances** in Amazon’s data centers. ([https://aws.amazon.com/ec2/](https://aws.amazon.com/ec2/))

H. **Amazon Simple Storage Service (S3)**: Storage for the internet. You can use it to store and retrieve any amount of data at any time, from anywhere on the web. ([https://aws.amazon.com/s3/](https://aws.amazon.com/s3/))

I. **Amazon Relational Database Service (RDS)**: A web service that makes it easier to set up, operate, and scale a relational database in the cloud. It provides cost-efficient, resizable capacity for an industry-standard relational database and manages common database administration tasks. ([https://aws.amazon.com/rds/](https://aws.amazon.com/rds/))

J. **Django REST**: Django REST framework is a powerful and flexible toolkit for building Web APIs. ([https://www.django-rest-framework.org/](https://www.django-rest-framework.org/))

K. **GET Request**: HTTP defines a set of **request methods** to indicate the desired action to be performed for a given resource. Although they can also be nouns, these request methods are sometimes referred to as **HTTP verbs**. Each of them implements a different semantic, but some common features are shared by a group of them: e.g. a request method can be **safe**, **idempotent**, or **cacheable**. The GET method requests a representation of the specified resource. Requests using GET should only retrieve data. ([https://developer.mozilla.org/en-US/docs/Web/HTTP/Methods](https://developer.mozilla.org/en-US/docs/Web/HTTP/Methods))

**BACKGROUND**

TymeWear is an innovative entrepreneurship that targets cardiovascular performance sports for professional runners. Chief designer, engineer, and developer Juan Morales has created a Tymewear Smart Shirt and Accelerometric Gyrometric Bluetooth Runner Data Gatherer which communicates with an iPhone App Service. Juan’s background in electrical engineering, multiple software, and engineering development projects as well as experience in martial arts, sports exercise has given him a leading edge in sports metrics.