

Software Requirements Specification (SRS) for [Sistema 1]

1. Introduction

1.1 Purpose

[Sistema 1] is a cloud-based system designed to analyze and extract business requirements from recorded meetings.

It automates the transcription, structuring, and processing of discussions into actionable tasks using AI and NLP.

1.2 Scope

The system includes:

- **Audio Processing:** Transcribe recorded calls using Whisper AI.
- **Requirement Extraction:** AI-based NLP models (ChatGPT) extract structured business requirements.
- **Validation:** Validates extracted requirements against metadata in a Data Warehouse.
- **Task Creation:** Converts business requirements into development tasks.
- **Storage & Accessibility:** Saves transcripts, requirements, and tasks for later retrieval.

2. System Overview & Architecture

2.1 High-Level Architecture

[Sistema 1] follows a **microservices architecture** with independent services deployed in AWS, ensuring scalability and resilience.

Software Requirements Specification (SRS) for [Sistema 1]

```
```mermaid
```

```
graph TD;
```

```
 subgraph AWS Cloud
```

```
 subgraph Networking
```

```
 ALB[AWS ALB (Load Balancer)]
```

```
 APIGW[Amazon API Gateway]
```

```
 end
```

```
 subgraph Processing Services
```

```
 AudioMS[Audio Processing (Whisper)]
```

```
 TranscriptionMS[Transcription Service]
```

```
 NLPMS[NLP & Requirement Extraction (ChatGPT)]
```

```
 ValidationMS[Requirement Validation (Metadata DB)]
```

```
 TaskMS[Task Management Service]
```

```
 end
```

```
 subgraph Storage & Observability
```

```
 S3[Amazon S3 (Storage)]
```

```
 DynamoDB[DynamoDB (Requirement Storage)]
```

```
 CloudWatch[AWS CloudWatch (Monitoring)]
```

```
 end
```

```
end
```

```
%% Connections
```

```
APIGW --> AudioMS
```

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AudioMS --> TranscriptionMS

TranscriptionMS --> NLPMS

NLPMS --> ValidationMS

ValidationMS --> TaskMS

TaskMS --> DynamoDB

DynamoDB --> S3

TaskMS --> CloudWatch

...

## # 3. Functional Requirements

### ## 3.1 Core Functionalities

- 1. **Audio Upload & Processing** (MP3, WAV files stored in S3)
- 2. **Automated Transcription** (Whisper AI converts speech to text)
- 3. **Business Requirement Extraction** (ChatGPT analyzes text and extracts structured needs)
- 4. **Requirement Validation** (Cross-checks extracted requirements against existing DB metadata)
- 5. **Task Generation** (Transforms requirements into development tasks)
- 6. **Storage & Access** (Provides an API to retrieve past transcripts and tasks)

### ## 3.2 User Roles & Permissions

Role	Description
-----	-----
Visitor	Can upload audio for transcription
Analyst	Can review extracted requirements

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| Developer | Can access structured development tasks |

| Admin | Manages system settings & metadata validation |

## # 4. Data Model

```plantuml

@startuml

entity Grabacion {

* id : UUID

* fecha_hora : TIMESTAMP

* duracion : INTEGER

* url_almacenamiento : STRING

* estado : ENUM (pendiente, procesado, fallido)

}

entity Transcripcion {

* id : UUID

* grabacion_id : UUID (FK)

* contenido : TEXT

* segmentado_por_orador : JSON

* estado : ENUM (pendiente, procesado, fallido)

}

entity Requerimiento {

* id : UUID

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```
* transcripcion_id : UUID (FK)

* descripcion : TEXT

* tipo : ENUM (funcional, no funcional, dependencia)

* prioridad : ENUM (alta, media, baja)

* estado : ENUM (pendiente, validado, en desarrollo, completado)

}
```

' Relationships

Grabacion ||--|| Transcripcion : "1 a 1"

Transcripcion ||--|{ Requerimiento : "1 a M"

@enduml

...

5. Non-Functional Requirements

1. **Scalability** - Auto-scaling AWS Lambda & ECS services.
2. **Security** - OAuth2 authentication, IAM Roles, and encrypted storage.
3. **Performance** - Optimized API Gateway with caching & parallel processing.
4. **High Availability** - Multi-region S3 storage and distributed microservices.
5. **Logging & Monitoring** - Centralized logs in CloudWatch with X-Ray tracing.

6. Deployment & CI/CD

- **Infrastructure as Code:** Terraform for automated provisioning.
- **CI/CD Pipeline:** GitHub Actions or AWS CodePipeline.
- **Containerization:** ECS Fargate with auto-scaling.

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7. Conclusion

[Sistema 1] provides an end-to-end solution for capturing, processing, and structuring business requirements from recorded meetings, ensuring accuracy, automation, and integration with software development workflows.