# API Documentation

## Overview

This documentation explains the endpoints available in the Sensor Data Reading and Analysis System. The system provides three main endpoints for data access:

- Daily readings

- Monthly readings

- Custom date range readings

## Endpoints

### 1. Daily Readings

Retrieves all detailed readings for the current day.

\*\*Request Method:\*\* GET

\*\*Path:\*\* `/readings/daily`

#### Response

```json

{

"status": "success",

"count": 24,

"data": [

{

"day": 15,

"month": 3,

"year": 2024,

"time": "08:00:00",

"ph": 7.2,

"temperature": 25.5,

"humidity": 65.3,

"salt": 450,

"light": 800

}

]

}

```

#### Response Data Details

- `status`: Request status ("success" or "error")

- `count`: Number of returned readings

- `data`: Array containing detailed readings

- `day`: Day of the month

- `month`: Month number

- `year`: Year

- `time`: Reading time

- `ph`: pH level

- `temperature`: Temperature reading

- `humidity`: Humidity percentage

- `salt`: Salinity level

- `light`: Light intensity

### 2. Monthly Readings

Retrieves daily average readings for a specified month.

\*\*Request Method:\*\* GET

\*\*Path:\*\* `/readings/monthly`

#### Query Parameters

- `month`: Month number (1-12) - Optional, defaults to current month

- `year`: Year - Optional, defaults to current year

\*\*Example:\*\* `/readings/monthly?month=3&year=2024`

#### Response

```json

{

"status": "success",

"count": 30,

"data": [

{

"day": 1,

"month": 3,

"year": 2024,

"readings\_count": 24,

"ph": 7.2,

"temperature": 25.5,

"humidity": 65.3,

"salt": 450,

"light": 800

}

],

"statistics": {

"month\_name": "March",

"year": 2024,

"total\_days": 30,

"total\_readings": 720

}

}

```

#### Response Data Details

- `data`: Array containing daily average readings

- `readings\_count`: Number of readings used for averaging

- Other fields represent the daily averages

- `statistics`: Monthly statistics

- `month\_name`: Name of the month

- `total\_days`: Number of days with readings

- `total\_readings`: Total number of readings before averaging

### 3. Custom Date Range Readings

Retrieves daily average readings for a specified date range.

\*\*Request Method:\*\* GET

\*\*Path:\*\* `/readings/between`

#### Query Parameters

- `start\_date`: Start date (YYYY-MM-DD) - \*\*Required\*\*

- `end\_date`: End date (YYYY-MM-DD) - \*\*Required\*\*

\*\*Example:\*\* `/readings/between?start\_date=2024-03-01&end\_date=2024-03-15`

#### Response

```json

{

"status": "success",

"count": 15,

"data": [

{

"day": 1,

"month": 3,

"year": 2024,

"readings\_count": 24,

"ph": 7.2,

"temperature": 25.5,

"humidity": 65.3,

"salt": 450,

"light": 800

}

],

"statistics": {

"date\_range": {

"start\_date": "2024-03-01",

"end\_date": "2024-03-15",

"total\_days": 15,

"days\_with\_readings": 15,

"total\_readings": 360

}

}

}

```