

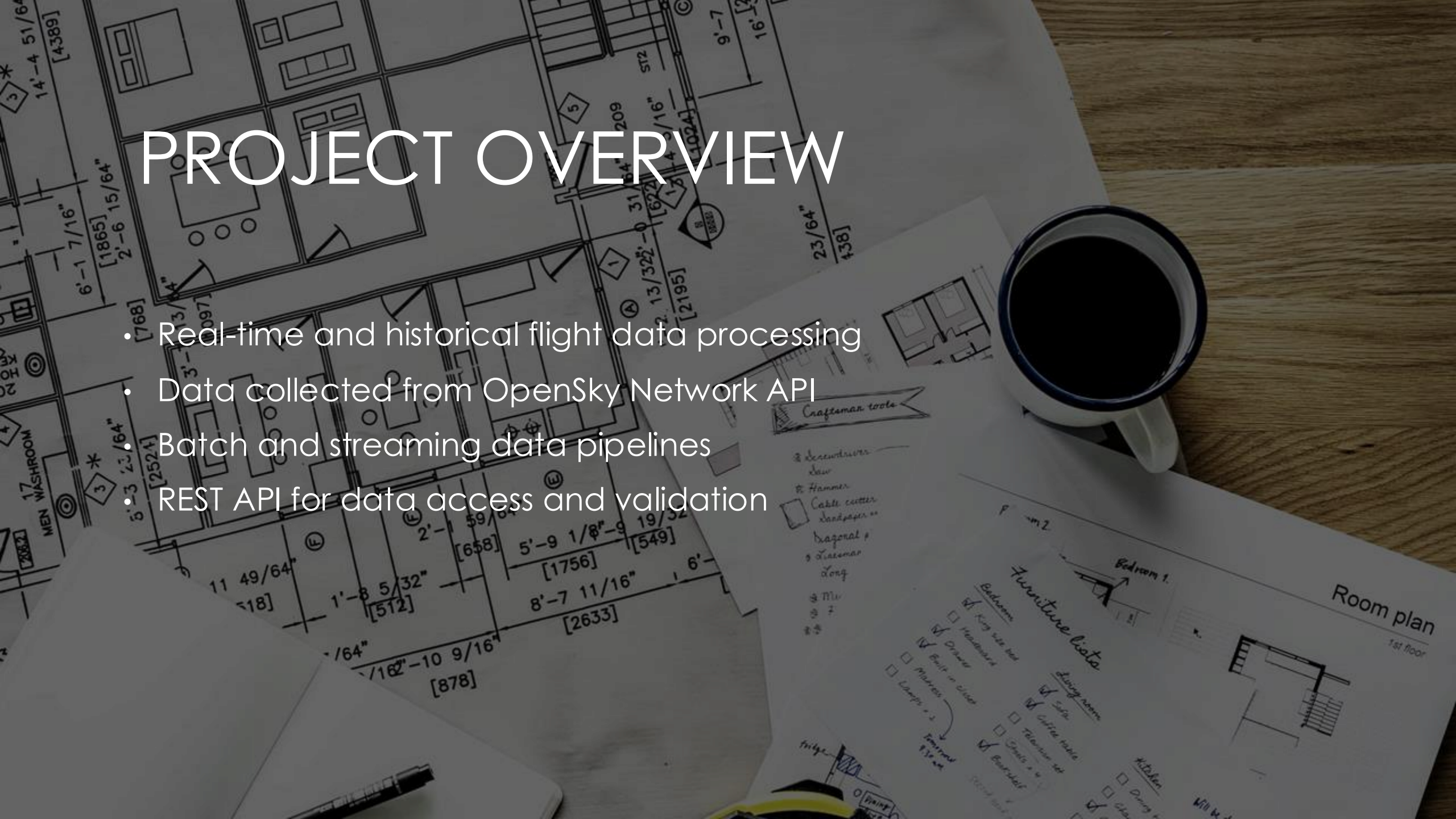
Real-Time and Historical Air Traffic Data Pipeline

TEAM 11

Several thin, white, parallel diagonal lines are positioned in the bottom right corner of the slide, extending from the right edge towards the center.

PROJECT OVERVIEW

- Real-time and historical flight data processing
- Data collected from OpenSky Network API
- Batch and streaming data pipelines
- REST API for data access and validation





SYSTEM ARCHITECTURE OVERVIEW

Client-server architecture

Decoupled frontend and
backend

Real-time and batch processing
pipelines

REST API as communication layer

Python as main
programming
language

Pandas for data
manipulation

Apache Spark for
batch processing

FastAPI for REST
API services

BACKEND TECHNOLOGIES

A series of white diagonal lines of varying lengths and thicknesses, located in the bottom right corner of the slide, creating a modern, abstract graphic element.



FRONTEND TECHNOLOGY STACK

React with TypeScript

Functional components and React Hooks

Recharts for data visualization

Contains a real-Time Update Mechanism
(configurable refresh interval)

DEMO

