

# AGENTIC AI PROJECT

## Audio signal processing assistant agent

### Step-by-Step Implementation: Audio Signal Processing Assistant Agent on IBM Cloud

#### 1. Set Up IBM Cloud Environment

- Create IBM Cloud Account
- Go to [cloud.ibm.com] (<https://cloud.ibm.com>)
- Sign up with email (use Lite account for free tier)
- Verify email and complete registration
- Access Watsonx.ai
- In IBM Cloud dashboard, search "Watsonx" in catalog
- Select watsonx.ai → Click "Create"
- Choose region (e.g., Dallas) and Lite plan → Create

#### 2. Create Project Workspace

>> In Watsonx.ai dashboard:

- Click "Create a project"
- Name: AudioSignal\_Agent
- Description: "AI assistant for audio circuit design and debugging"
- Select storage: Cloud Object Storage Lite
- Click "Create"

>> Add Watsonx.ai Runtime:

- In project page, click "Associate service"
- Select watsonx.ai Runtime → Create new instance
- Choose Lite plan → Create

#### 3. Configure AI Agent

>> Navigate to Agent Lab:

- In project sidebar → Go to "Agent Lab"
- Click "Build an AI agent to automate tasks"

>> Agent Setup:

Agent Name: AudioCircuitAssistant

Framework: LangGraph

Instructions: You are an expert audio engineer specializing in analog circuit design.

Provide step-by-step guidance for:

- Troubleshooting noise/distortion issues
- Filter design calculations
- Component selection
- PCB layout best practices

Always reference authoritative sources (IEEE, manufacturer datasheets)

>>Select Foundation Model:

- Click "Select foundation model"
- Choose \*IBM Granite-13B-chat (Technical reasoning optimized)
- Click "Select model"

#### 4. Add tools

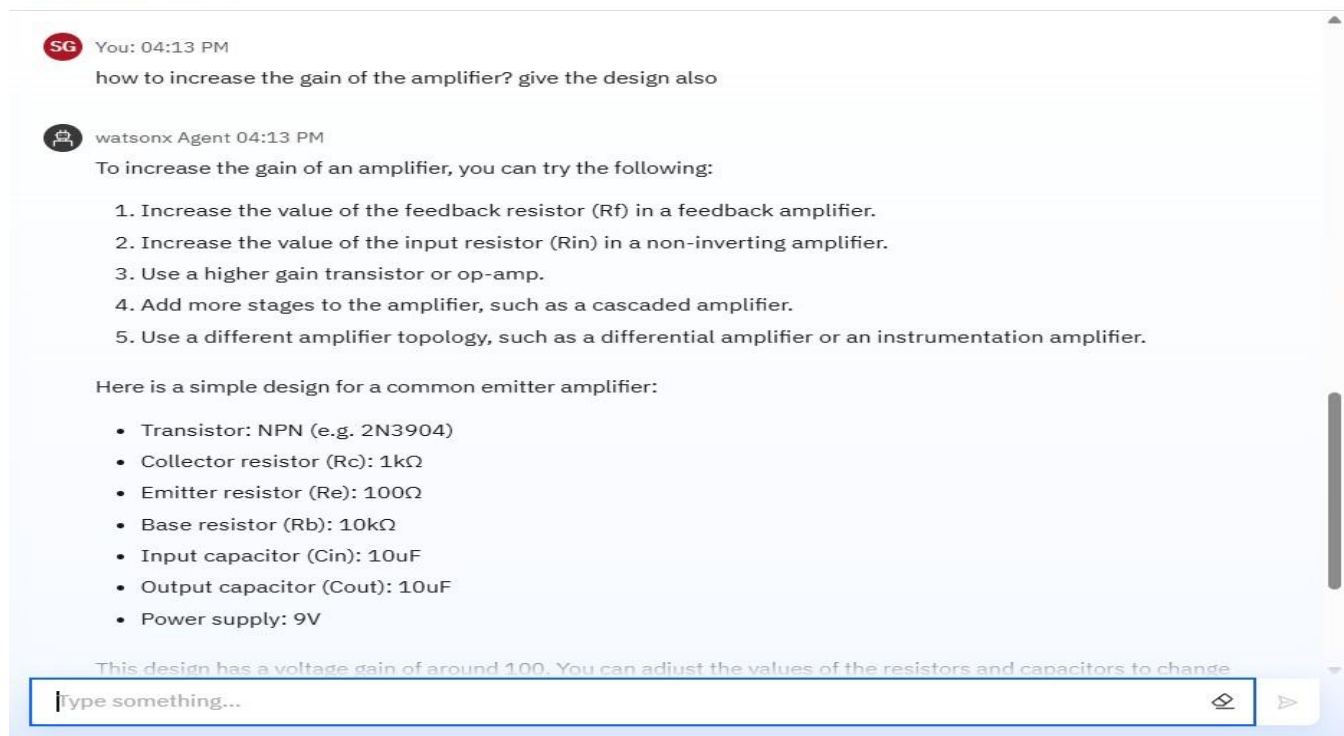
- Google (based on the requirement)

#### 5. Test the Agent

1. Sample Queries:

- "Why is my Class-D amp buzzing?"
- "Design 2kHz low-pass filter"
- "Best op-amp for phono preamp?"

##### Agent preview



#### 6. Deploy the Agent

>>Create Deployment Space:

- In project → "Deployments" → "New deployment space"
- Name: AudioAgent\_Production

>>Configure Runtime:

- Associate watsonx.ai Runtime service
- Set resource limits: 256MB RAM, 1 vCPU

>>Deploy as API:

- In Agent Lab → Click "Deploy"
- Choose deployment space
- Select "API endpoint" deployment type
- Click "Deploy"

**In the above procedure we can develop any agentic AI projects by using the IBM cloud**