

# AI for Bharat Hackathon

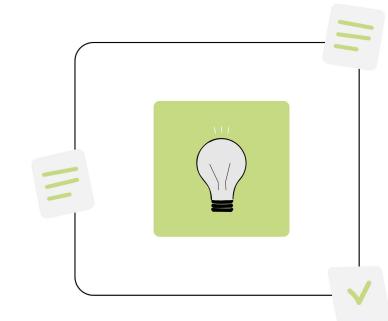
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**Team Name :** HASHMAP

**Team Leader Name :** YASH KUMAR SINGH

**Problem Statement :** Build an AI-powered solution that helps people learn faster, work smarter, or become more productive while building or understanding technology.



## AutoDev AI – An Autonomous AI Teammate for Developers

AutoDev AI is an **AI-powered, workflow-native tool** that integrates directly into a developer's GitHub workflow and **automatically understands pull requests, updates documentation, and provides intelligent review feedback**, all **without requiring prompts, chats, or manual intervention**.

Instead of helping developers *write more code*, AutoDev AI helps teams **maintain code quality, clarity, and documentation** as the codebase evolves.



GitHub → Webhook → AutoDev AI Backend → LLM → GitHub

*AI that works **silently** in the background, just like a responsible teammate.*

# Our Solution

## How does it solve the problem?

AutoDev AI solves common developer pain points:

- Reviewers struggle to understand PR intent
- Documentation becomes outdated quickly
- Code reviews focus on syntax instead of logic
- Developers waste time explaining changes repeatedly



## AutoDev AI automatically:

- Reads PR diffs
- Understands intent & impact
- Explains changes clearly
- Keeps documentation updated
- Flags risky changes early

*This reduces cognitive load and review time across the team.*

## How is it different from existing solutions?

Most existing tools (Copilot, IDE chatbots) require **constant human interaction**. AutoDev AI **acts automatically** on pull request events.

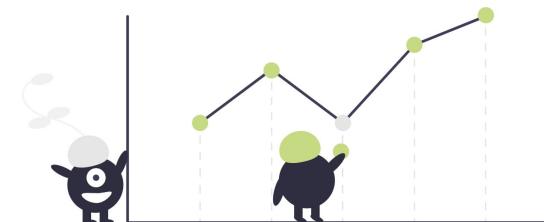
Existing IDE Agents	AutoDev AI
Reactive (prompt-based)	Proactive (event-based)
Works inside IDE	Works inside GitHub workflow
Helps write code	Helps maintain codebase
Individual-focused	Team-focused
Interrupts flow	Silent & autonomous

## USP of the Proposed Solution

*AutoDev AI shifts AI from being a reactive assistant to an autonomous AI teammate that works inside developer workflows without human prompting.*

### USP Highlights:

- **Zero** prompts required
- **Event-driven** intelligence
- Works at **repository** level
- **Improves** long-term maintainability
- **Team-wide** benefits



## Features offered by the solution

### Core Features

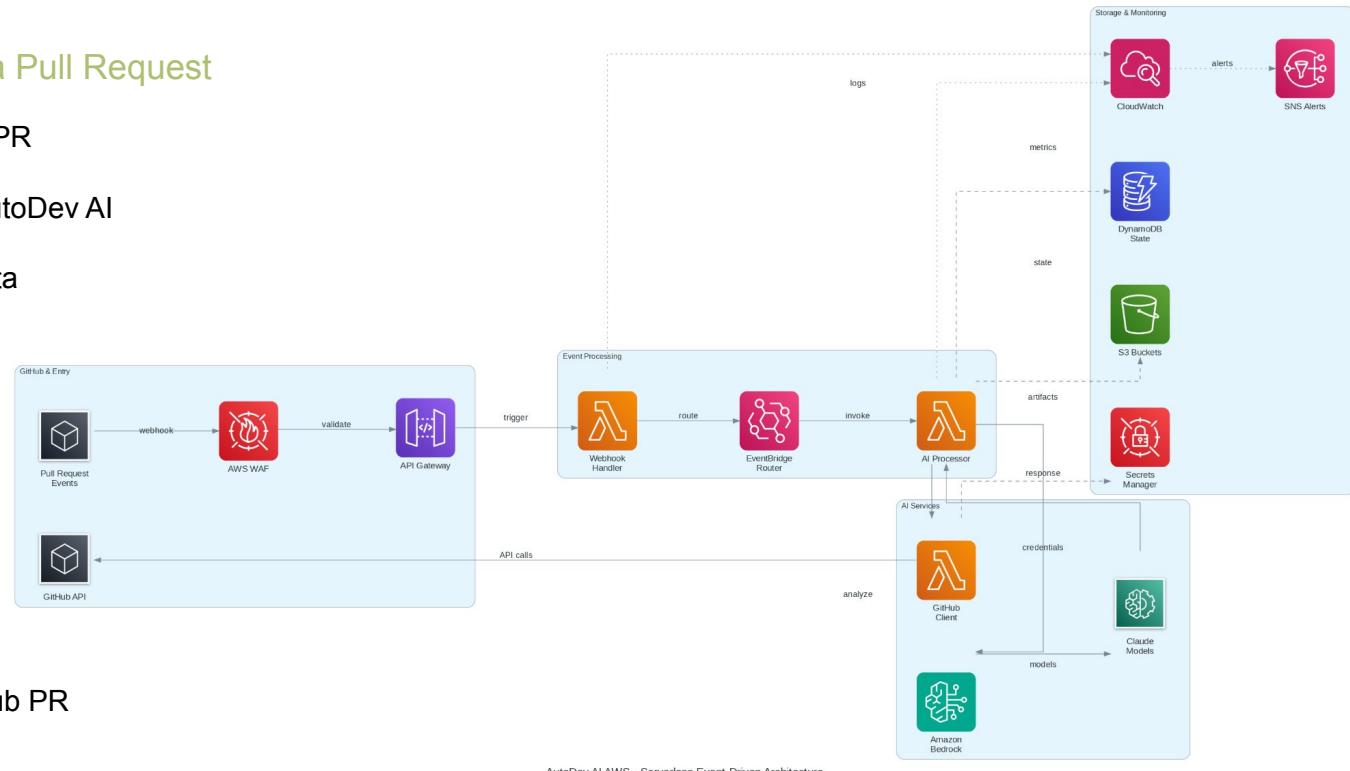
1. **Automatic PR Summarization** - Explains what changed, why it matters, and impact areas
2. **Auto Documentation Updates** - Updates README / docs when APIs or configs change
3. **Intelligent PR Feedback** - Flags risky logic, complexity, or unclear code; No noisy lint-style comments
4. **Workflow-Native Integration** - Comments directly on GitHub PRs
5. **Scalable & Safe Processing** - Processes only PR diffs, not full repos



# Process flow diagram or Use-case diagram

## Use Case: Developer Opens a Pull Request

1. Developer **opens** / updates PR
2. GitHub webhook **triggers** AutoDev AI
3. AI **fetches** PR diff & metadata
4. AI **analyzes** intent & impact
5. AI **generates**:
  - PR summary
  - Doc updates
  - Review comments
6. Output **posted** back to GitHub PR



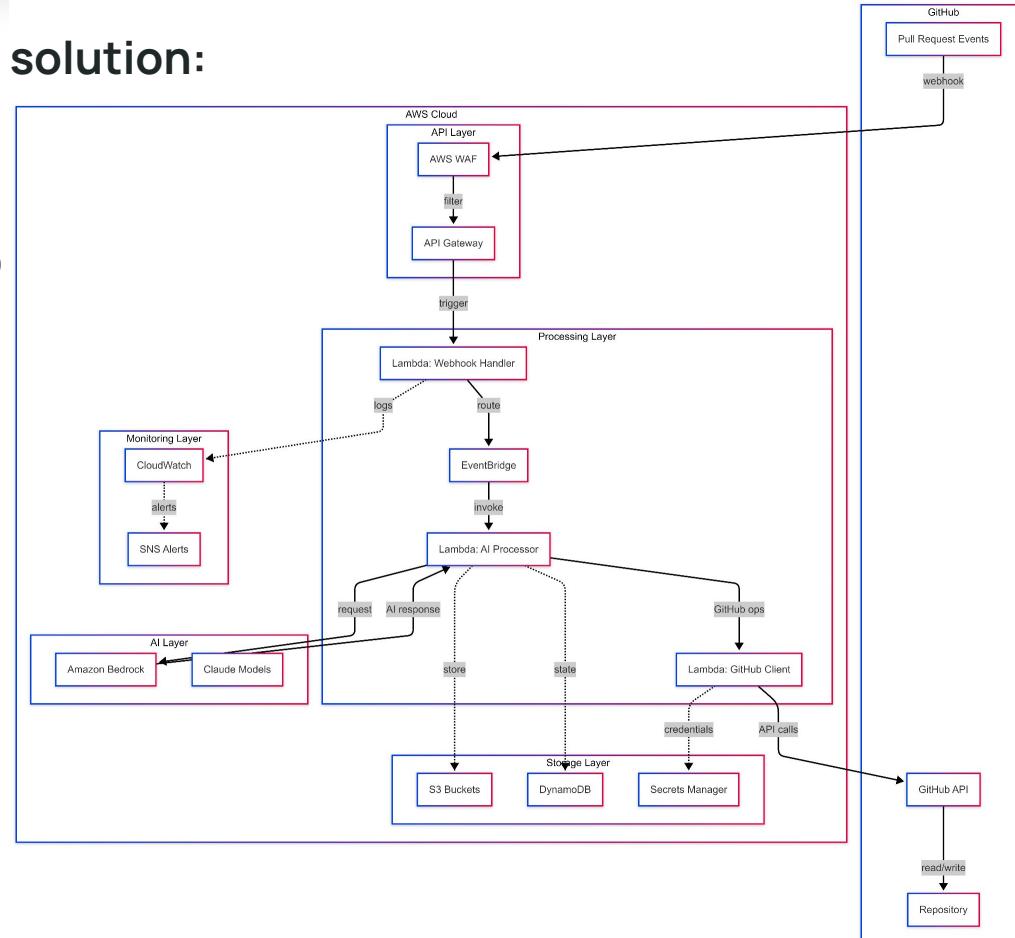
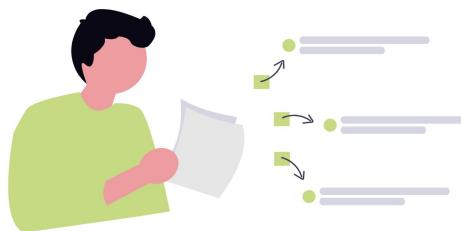
## Architecture diagram of the proposed solution:

### High-Level System Flow

GitHub → Webhook → AutoDev AI Backend → LLM → GitHub

#### Key points:

- Event-driven
- Asynchronous
- No continuous polling
- Low cost & scalable



## Technologies to be used in the solution:

- **GitHub Webhooks & API** – Detect pull request events and fetch code diffs
- **AWS Bedrock (LLMs)** – Analyze code changes and generate summaries & insights
- **AWS Lambda** – Serverless processing of webhook events and AI workflows
- **Amazon S3** – Temporary storage for PR diffs and generated outputs
- **smee.io** – Forward GitHub webhooks to local backend for demo/testing
- **Python / Node.js Backend** – Core logic for data processing and integrations



### Why AWS?

- Serverless
- Scalable
- Cost-efficient
- Hackathon-aligned

## Estimated implementation cost (optional):

### Hackathon / MVP Cost

- **GitHub Webhooks:** Free
- **sme.io:** Free
- **AWS Lambda:** Minimal (within free tier)
- **AWS Bedrock:** Pay-per-use (low volume)
- **Storage (S3):** Negligible



**Estimated MVP Cost:  
Very Low (Hackathon-friendly)**

# Conclusion

## Business Feasibility

- **High early adoption** – GitHub-native, no workflow change
- **Clear value** – Faster PR reviews, up-to-date docs, less manual effort
- **Low entry barrier** – Free tier for small teams & open-source
- **Scalable model** – Usage-based / team-based pricing post-MVP
- **Cost-efficient** – Event-driven, serverless architecture
- **Strong market fit** – Complements existing dev tools, not a replacement

## Why AutoDev AI Works?

- ✓ AI-powered (meaningful reasoning)
- ✓ Improves learning & productivity
- ✓ Minimal human intervention
- ✓ Clear real-world use case
- ✓ Scalable & feasible
- ✓ Strong differentiation from chatbots

*AutoDev AI doesn't help developers type faster,  
it helps teams build better software.*



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