AI Journey – Small To Big Steps

GWEST@REDHAT.COM

APRIL 8, 2025

AI Learning for April 2025

- First AI Productively – RDS and Openshift deployment changes

- Second AI Productivity – Using full AI Generation for IOT Devices

Simple Deployment Script AI Generation

- Original rds deployments were done with via "POD" definitions

- Wanted to move to Openshift Deployments

- Conceived from "Medium" Article
  - https://medium.com/@whaleberry/convert-pod-to-deployment-in-kubernetes-b0f2fc362b21

Original Pod Description

```yaml
rds-task.yaml    438 B                    Blame  Edit ⌄    Lock  Replace  Delete

1    kind: Pod
2    apiVersion: v1
3    metadata:
4      name: rds-task
5    spec:
6      restartPolicy: Always
7      replicas: 1
8      containers:
9        - name: rds-task
10         image: image-registry.openshift-image-registry.svc:5000/rds-automation/rds-task
11         envFrom:
12         - secretRef:
13             name: rds-env
14         volumeMounts:
15         - name: rds-task-data
16           mountPath: /data
17     volumes:
18     - name: rds-task-data
19       ocs-storagecluster-cephfs:
20         sizeLimit: 500Mi
21
```

Deployment

- 1. Install Amazon Q Developer plugin to Visual Studio

- 2. Opened rds-task-deploy.yaml" in visual studio

- 3. Open Amazon Q Developer Chat window:
  - "Change Pod to deployment"

Result

rds-task-deploy.yaml 598 B

Blame | Edit ⌄ | Lock | Replace | Delete

```yaml
1  apiVersion: apps/v1
2  kind: Deployment
3  metadata:
4    name: rds-task
5  spec:
6    replicas: 1
7    selector:
8      matchLabels:
9        app: rds-task
10   template:
11     metadata:
12       labels:
13         app: rds-task
14     spec:
15       containers:
16         - name: rds-task
17           image: image-registry.openshift-image-registry.svc:5000/rds-automation/rds-task
18           envFrom:
19             - secretRef:
20                 name: rds-env
21           volumeMounts:
22             - name: rds-task-data
23               mountPath: /data
24       volumes:
25         - name: rds-task-data
26           ocs-storagecluster-cephfs:
27             sizeLimit: 500Mi
```

Steps

- The result came as a block in "chat"

- Verified that the config was ok

- Copy pasted it into the deployment yaml, used it to create the pod.

- Worked first time

- As yaml are tab/white space, and editing usually means a few tries to get spacing just right, this did it in a moment.

Further Tests

- Converted worker, rabbitmq and redis into deployments.
  - All were one and done
- Opened all deployments, and ask "Q Developer" to combine all the deployments
- It then showed the complete deployment
- Tested rds-deploy-all.yaml
  - Worked first time
- Cleaned up repo, removed 10 files/deleted 279 lines

Result

Commit 8ba65785 ☐ authored 3 days ago by 🌀 **Glenn West**   **Browse files**   **Options** ∨

Remove redundant files - replaced by rds-deploy-all.yaml

◦— parent fb696381

⅄ Branches › Branches containing commit

⅄↓ No related merge requests found

Changes 10

Showing **10 changed files** ∨ with **0 additions** and **279 deletions**   **Hide whitespace changes** | **Inline** **Side-by-side** |

Thoughts

- At this time, do not "trust" AI to write code, but good for config/yaml fixups.

- For config/yaml, I did try some other changes, but it seemed to have "version" issues as things have changed over time. As this was secondary, did not followup

Using AI for IOT Design

- IOT Design consists of hardware and software

- Personal Goal for design a IOT Device for "Blinds" control

What is blindscontroller "hardware"

- USB-C Power input from power bank
  - Must be 12Volt for torque
- USB-PD Controller to tell power bank, "Please give me 12V"
- A dc-to-dc stepdown converter for 3.2 Volts
- ESP32-C6 – Microcontroller
- ULN2003 Motor Controller

- Hardware design Steps
  - Schematic Capture
    - Component Selection/Costing/Models
  - PCB Layout
  - PCB Routing
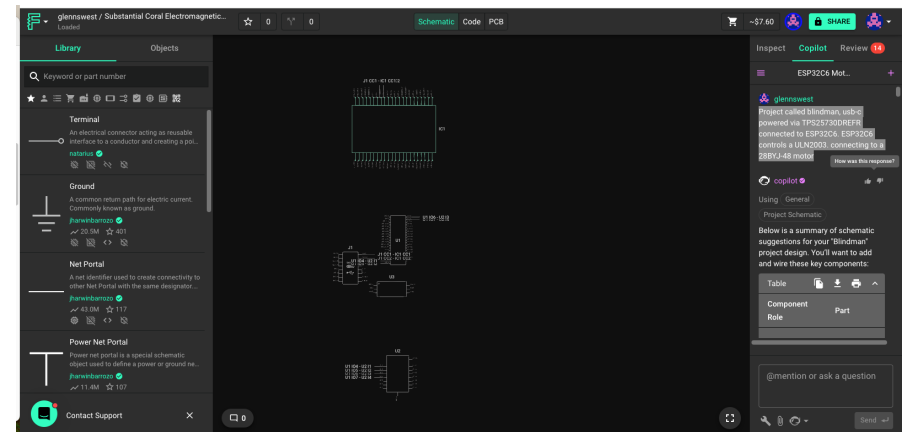 - PCB Cleanup
  - BOM Creation

FluxAI

- Based on some search on iot/board design discovered fluxai

- Demo's looked neat

- Edorsements looked cool

- Marketing was great
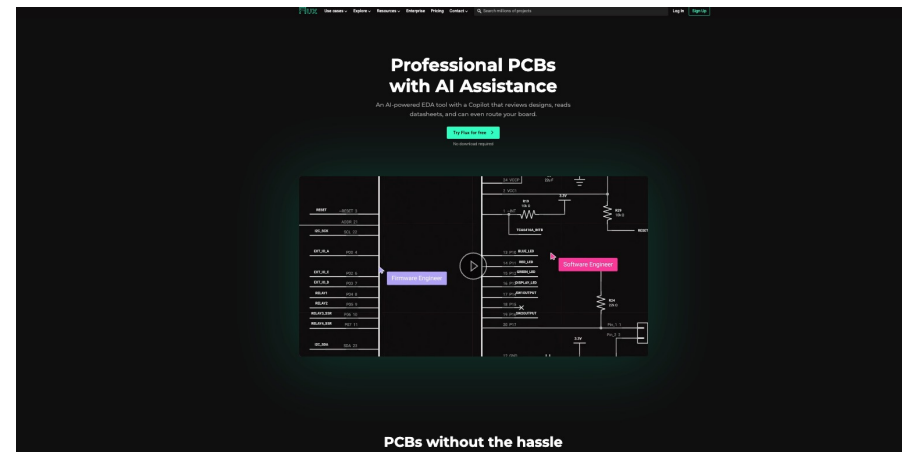
How does it work:

- You "chat" to the ai, requesting what you want:

  "Project called blindman, usb-c powered via TPS25730DREFR connected to ESP32C6. ESP32C6 controls a ULN2003. connecting to a 28BYJ-48 motor"

RESULT

glennswest / Substantial Coral Electromagnetic...
Loaded

Schematic | Code | PCB

~$7.60 | SHARE

Library | Objects

Keyword or part number

Terminal
An electrical connector acting as reusable interface to a conductor and creating a poi...
natarius ✓

Ground
A common return path for electric current. Commonly known as ground.
jharwinbarrozo ✓
20.5M ☆ 401

Net Portal
A net identifier used to create connectivity to other Net Portal with the same designator...
jharwinbarrozo ✓
43.0M ☆ 117

Power Net Portal
Power net portal is a special schematic object used to define a power or ground ne...
jharwinbarrozo ✓
11.4M ☆ 107

Contact Support ✕

💬 0

Inspect | Copilot | Review 14

☰ ESP32C6 Mot... +

👾 **glennswest**
Project called blindman, usb-c powered via TPS25730DREFR connected to ESP32C6. ESP32C6 controls a ULN2003. connecting to a 28BYJ-48 motor

How was this response?

⚙ **copilot** ✓

Using General

Project Schematic

Below is a summary of schematic suggestions for your "Blindman" project design. You'll want to add and wire these key components:

| Table	📋 ⬇ 🖨 ⌃
Component Role	**Part**

@mention or ask a question

🔧 📎 ⊙ ▾ | Send ↵

Thoughts

- They work to hard on "marketing", on making it cute:
  - They named my project "Substation Core Electromagnet….."
  - When there getting ready to do something they add nonsense messages "Charging Flux Capacitor"
- Interactions:
  - Slow, and bad chat interface, multiple confirms, long delay between
  - Horrible quality
  - Tried for 2 hours

Unusable
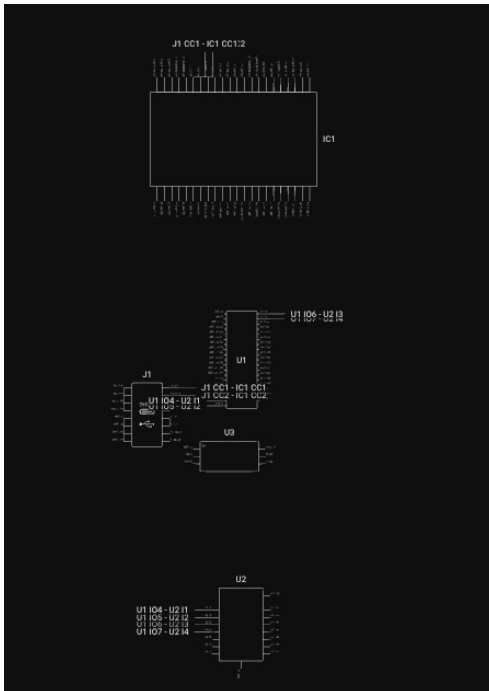
- Just randomly placed bits

- Hardware design its important
  - Be neat
  - Every choice affects outcome/price/performance
  - Takes to long

Alternative

- Installed kicad

- Used "ultralibrarian" for known good schematic/pcb symbols

- Proceeded to learn kicad, and design first stage

- Previously have used "Altium"

- Never used kicad before

Result

Final Thoughts

- AI is very good at some repeatable tasks

- Version control can be a problem – Which version of openshift was the model trained on

- More detailed tasks, trust is really a issue: In IOT/PCB design, things like "use 10uf capacitors/multiples could save you several dollars" does not seem to be in current AI

- While my "kicad" first page took me 4-5 hours the quality was 100%, I spent about 2 hours trying Flux-AI and got nothing. Im sure that at some point, AI can design simple boards, but experience still is king.

- May be better for auto-routing/design checks etc.