**Project Report Template**

**Title of Project:** Digital Provenance and Deepfake Prevention  
**Name of the Innovator:** Tanmay Pise, Roshini Parkhe, Vaishnavi Pawar,  
**Start Date:** 15/10/2025

**End Date: 17/10/2025**

***Day 1: Empathise & Define***

*Step 1: Understanding the Need*

* Which problem am I trying to solve?

I am making a project in which an software update add in phones in which every photos will have a unique safety code or watermark’s so it will not allow those photos to use in Deepfake websites

* Who is affected by this problem?
* How did I find out about this? [Select whichever is applicable]
* Interviews
* Observation
* Online Research
* AI Tools

*Step 2: What is the problem?*

The problem I want to solve in **one clear sentence**

“Digital Provenance and Deepfake Prevention*”*

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Why is this problem important to solve? [Prompt: “*Draft 1-2 lines on why is this problem important to solve. Support this with evidence using relevant data points”]*

*Deepfake have a lot of website that is not safe for girls without knowing them photos upload on that website that is why we updated that software to aware that problem*

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**Take-home task**

Ask 2–3 people (you can speak to your family members, friends, teachers, trainers) what they think about this problem. Write down surprising or new things you learn below.

*AI Tools you can use for Step 1 and 2:*

1. **ChatGPT**: Use it to brainstorm different ways the problem might affect people.

***Day 2: Ideate***

*Step 3: Brainstorming solutions* [Prompt: “*I am ideating solutions for <enter your problem in detail> Suggest 5 unique solutions for this problem, which I can easily accomplish in 2 days using free, open-source mobile-friendly AI tools”]*

* List **at least 5 different solutions** (wild or realistic):

1. High level design(multi layer defense)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. System level verification API policy enforcement\_\_\_\_\_\_\_\_
3. Concrete building blocks & standard\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Device keys & attestation\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. App & cloud integration\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Step 4: My favourite solution:*

System level verification API policy enforcement\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Step 5: Why am I choosing this solution?*

Services can call to verify an image: check the signature, check watermark validity, check device attestation.

**Take-home task**

Generate the image of your solution and how it will look (eg: “a bag that charges your phone while you walk”)

[Prompt: “*I am ideating a solution for <enter your problem in detail> I have selected a solution which includes <enter your solution description> Generate an image for this solution]*

Attach the image in this box below:

*AI Tools you can use for Step 3-5:*

**ChatGPT/Perplexity AI**: You can use these tools to compare your solutions and choose the most effective one

*AI Tools you can use for the take-home task:*

**Canva AI/CoPilot AI/Meta AI:** Use these mobile-based tools to generate images for the solution they want to design

# capture flow (on-device)

image = camera.capture()

digest = sha256(image.bytes)

signature = TEE.sign(digest) # private key in TEE

manifest = {

"digest": digest.hex(),

"timestamp": now\_iso(),

"pubkey\_cert": device\_cert,

"signature": signature.hex()

}

# embed metadata

image\_with\_xmp = embed\_xmp(image, manifest)

# watermarker: embed short safety\_code (e.g. first 128 bits of digest)

safety\_code = digest[:16]

watermarked\_image = watermark\_encoder(image\_with\_xmp, safety\_code)

save(watermarked\_image)

# verify flow (any app)

def verify\_provenance(image):

manifest = extract\_xmp(image)

digest = sha256(remove\_xmp\_from\_pixels(image).bytes)

if digest.hex() != manifest["digest"]:

return "ALTERED"

# verify signature with pubkey\_cert and attestation chain

if not verify\_signature(manifest["pubkey\_cert"], manifest["signature"], manifest["digest"]):

return "UNVERIFIED\_SIGNATURE"

# decode pixel watermark and compare safety code

decoded\_code = watermark\_decoder(image)

if decoded\_code != manifest["digest"][:16]:

return "WATERMARK\_MISMATCH"

return "VALID"

***Day 3: Prototype & Test***

*Step 6: Prototype – Building my first version*

* What will my solution look like?

[Take inspiration from the image generated on Day 2 and describe the solution]

It will help girls in safty and secure .

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* What AI tools will I need to build this?

[Prompt: “*I am ideating a solution for <enter your problem in detail> I have designed a solution which includes <enter your solution description> What open-source, free AI tools that I can use to build this solution? The tools should be easily available and accessible on my mobile. Do not recommend tools which requires cost or subscription”]*

\_chatgpt,meta ai, gemini and etc. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* What AI tools I finally selected to build this solution? [Eg: Claude AI, Grok AI, Chatling AI]

1. **Chatgtp\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. **Meta AI\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
3. **Gemini\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
4. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
5. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**<BUILD YOUR INNOVATION> <TEST YOUR INNOVATION>**

*Step 7: Test – Getting Feedback*

* Who did I share my solution with? [You may share it with your trainer, peers or even AI]

My sister ,mother and some of my good friends \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* What feedback did I receive?

👍 What works well:

Watermarks well it does not allow to be used in Deepfake

🔧 What needs improvement:

Blocking screenshots like Gpay and etc. Which helps to taking anyones photos without permission

**Take-home task**

Record your solution and test feedback in voice notes. Upload your voice notes, images and your solution/model on GitHub

*AI Tools you can use for Step 6-7:*

**ChatGPT/Perplexity AI/Claude AI/Canva AI/Chatling AI/Figma AI**: You can use these tools to build solutions/models or mock-up dummy prototypes

***Day 4: Showcase***

*Step 8: Presenting my Innovation*

* Final Project Title:

Digital Provenance and Deepfake Prevention  
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* Document key points of my presentation:

[Prompt with attachment/screenshot of your solution: “*I am ideating a solution for <enter your problem in detail> I have selected a solution which includes <enter your solution description> I tested the solution with <enter details of who tested your solution> and they gave the following feedback <enter feedback given by the testers> Generate a 1-minute pitch document with following headings: project title, problem statement, my innovation, feedback I received from users, impact of my innovation. Add the attached image in the pitch document”]*

**<SHOWCASE YOUR INNOVATION TO YOUR PEERS>**

*Step 9: Reflections*

* What did I enjoy the most during this project-based learning activity?

I know this will help to secure many girls life \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* What was my biggest challenge during this project-based learning activity?

Will this project will work or not and from which tools and code I can use for my project \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Take-home task**

Upload your pitch document on GitHub

*AI Tools you can use for Step 8:*

**Canva AI:** You can use this to design your pitch document. Download your pitch document as a PDF file and upload on GitHub