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Project Phase – I

Synopsis

Project Title:			
Sl. #	**Name of the Student**	**USN**	**Guide Details**
1.	TJ Lakshmi	1GA20CS149	Prof. Reshma D'Souza
2.	Sonupriya KJ	1GA20CS140	
3.	Saakshi P	1GA20CS120	

Introduction:

- A decentralized application (DApp) designed to safeguard intellectual property, patents, and other creative assets.
- In a world where innovation and securing our assets are at the forefront, our DApp seeks to utilize the power of blockchain technology to provide an immutable and transparent solution for the protection of intellectual rights.

Motivation:

- We aim to revolutionize intellectual property management through a decentralized application (DApp) that addresses current flaws. With risks of centralization, opaque licensing, identity verification gaps, and limited community involvement in existing systems, our goal is to provide a secure, transparent, and community-driven platform using blockchain and smart contracts.

Problem Statement:

- Current intellectual property systems suffer from centralization, opaque licensing processes, and identity verification challenges. This leaves creators vulnerable to tampering, disputes, and inefficiencies. Existing platforms lack transparency, struggle with interoperability, and lack community-driven governance.

Objectives:

- The primary objective of our Intellectual Property Protection DApp is to establish a decentralized, secure, and tamper-proof platform that safeguards the intellectual rights of creators, innovators, and inventors.
- By leveraging blockchain, we aim to create an environment that ensures trust, transparency, and traceability in the management of intellectual property assets.
- In our Phase-1 we are working on designing the UI for the Dapp.
- Eventually we will work on selecting blockchain development platform and writing smart contracts.

Methodology:

- Selected Ethereum as the blockchain platform due to its popularity and support for smart contracts and install Ethereum Development Tools.
- We are using Solidity to write smart contracts for intellectual property registration, ownership transfer, and other relevant functionalities.
- We are utilizing IPFS for decentralized storage of intellectual property data, ensuring that files are distributed across a network of nodes for increased resilience and availability.
- Also implementing decentralized identity solutions to manage user identities securely. These platforms enable us to have control over their identity and authentication processes.
- We have chosen a modern JavaScript framework for building a responsive and user-friendly interface for users to interact with the DApp.
- We are using Node.js for server-side development to handle backend operations and communicate with the blockchain, to store non-blockchain data, such as user information and metadata associated with intellectual property assets we are implementing these operations using MongoDB.

Literature survey Completed So far and Gap Identified through the Literature Survey.

- Existing literature emphasizes the transformative potential of DApps in creating transparent, secure, and decentralized solutions. Blockchain technology forms the backbone of DApps, ensuring tamper-proof records and user empowerment.
- Research highlights the role of blockchain technology in enhancing intellectual property protection. Features like transparency, immutability, and smart contracts are explored as mechanisms to establish trust and automate certain IP processes.
- Literature points to the potential of smart contracts in automating aspects of intellectual property management. From licensing agreements to royalty distribution, smart contracts offer programmable and self-executing solutions.
- Few studies comprehensively address user experience, leading to potential adoption barriers.

- The literature identifies scalability as a notable challenge in blockchain networks, especially concerning the potential surge in transactions associated with intellectual property management.
- The literature reveals a gap in understanding the seamless integration of emerging technologies, such as artificial intelligence and the Internet of Things, into blockchain-based intellectual property protection.
- The existing literature tends to focus on theoretical aspects, with limited emphasis on practical implementations and real-world use cases. A knowledge gap exists in understanding the challenges and successes of implementing DApps for intellectual property protection.

5 IEEE/Springer/Elsevier/any Scopus journals

1) **Fake Product Detection using Anonymity and Supply Chain in Blockchain**
   This paper is about Blockchain-based Product Ownership Management System for identifying the counterfeits products in the Supply Chain.
   QR codes are used to detect the counterfeit products.

2) **Simulation of the Internet Computer Protocol: The Next Generation Multi-Blockchain Architecture**
   In this paper, this innovative distributed computing architecture is introduced, modeled and then simulated by means of an agent-based simulation.

3) **Standardizing Bad Cryptographic Practice: A Teardown of the IEEE Standard for Protecting Electronic-design Intellectual Property**
   Provides an analysis of IEEE standard P1735, finding surprising number of cryptographic mistakes in the standard.

4) **The Survey on Intellectual Property Based on Blockchain Technology**
   This paper expounds in detail the characteristics and the technical framework of blockchain.

5) **On intellectual property protection**
   The paper surveys all published aspects of the intellectual property protection problem, in the context of concerted VSIA efforts to define new standards and protocols.

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1.	TJ Lakshmi	1GA20CS149		
2.	Sonupriya KJ	1GA20CS140		
3.	Saakshi P	1GA20CS120		

Panel Members Remark:

Status: Approved ☐ **Rejected** ☐ **Needs Revision** ☐

Remarks:

Review Date:		
Sl. #	**Faculty Name**	**Faulty Signature**
1.		
2.		
3.		