Project Design Phase-I
Solution Architecture

Date	21 October 2023
Team ID	NM2023TMID08536
Project Name	Block-chain powered Library Management

Solution Architecture:

Here's a solution architecture diagram for library management system:

```
+-------------------------------------------------+
|    Etherium blockchain              |
+-------------------------------------------------+
             |
             v
+-------------------------------------------------+
|         smart Contracts              |
+-------------------------------------------------+
             |
             v
+-------------------------------------------------+
|         Decentralized Data base      |
+-------------------------------------------------+
             |
             v
+-------------------------------------------------+
|      User interface                  |
+-------------------------------------------------+
             |
+-------------------------------------------------+
| Authorized personnel interface       |
+-------------------------------------------------+
```
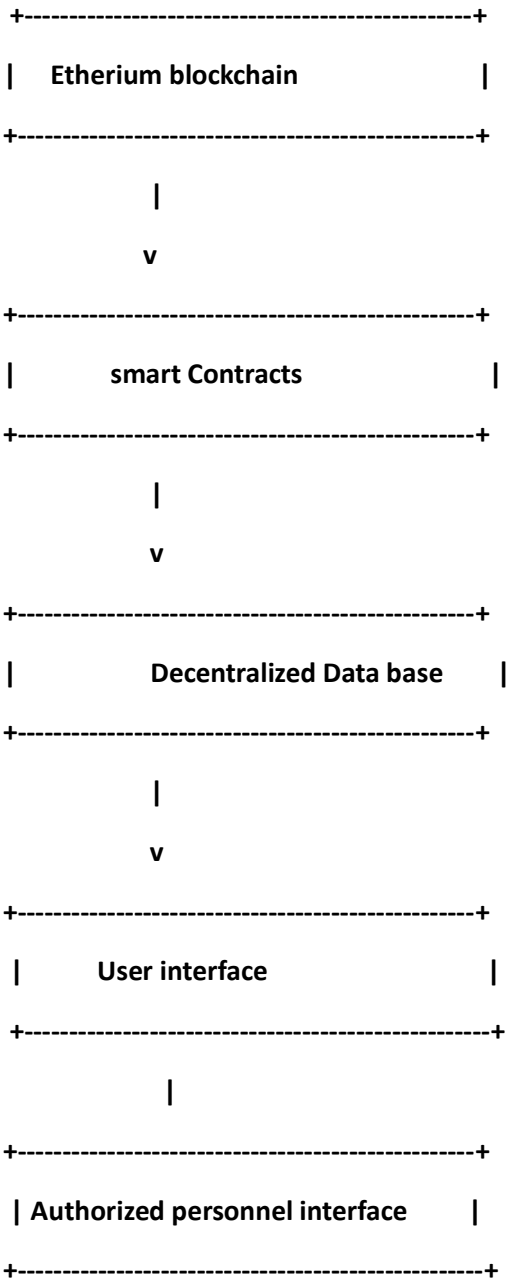
1. **Ethereum Blockchain: The core of the system is built on the Ethereum blockchain, ensuring transparency and security for book data management.**

2. **Smart Contracts: Each book is represented by a smart contract on the Ethereum blockchain. These contracts contain essential book details like title, author, ISBN, and ownership history.**

3. **Decentralized Database: The decentralized nature of the blockchain ensures that book records are immutable and transparent. This eliminates the need for a centralized database.**

4. **User Interface: Users can interact with the system through a user-friendly interface. Patrons can query book information and access trusted details about the books.**

5. **Authorized Personnel Interface: Librarians and other authorized personnel can efficiently add new books or transfer ownership through a secure transaction.**

This architecture leverages Ethereum smart contracts and a decentralized database to empower libraries with unprecedented data transparency, security, and efficiency, allowing them to seamlessly transition to the digital age.