IPFS Based Recipe WebApp

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**Part 2**

Current research in protocols for decentralization are promising. Technologies such as IPFS

(Interplanetary File System) are emerging that could help harden the web and give control of

information back to the user. Instead of location addressed content, which is the model of the

current web, content specific addressing offers a model where the data itself becomes the

identifier. This is accomplished by breaking up the data and creating a tree structure through a

series hashes, operating similarly to programs like Git. The caveat is that the resulting content

address of a piece of data is represented by a hash that is unique but unreadable by humans.

Furthermore, any changes to the data also change its hash, meaning that all places that have

references to the old hash would need to be updated in some way.

We want to design and prototype a UI to better demonstrate this system by interacting with and managing cooking recipe data hosted through a decentralized network of peers using IPFS. The system should have a way to add recipes to the IPFS web and store the resulting hash addresses in a dictionary paired with human readable names as part of an account managed by users of the program. This user data is expected to be stored either on their devices, or securely out in the IPFS network. Users should be able to rename their recipes, update the hash address (when updating or changing a recipe), and remove recipes from their account. We should also consider a recipe querying system, that can look up a selection of recipes based on hashes that are stored by the host of the site. If time permits, we should also consider including an interface for a system that allows users to share recipes with each other. However this system is implemented, it should be obvious to the user that the data is being stored not in a database, but as a system of decentralized hashes scattered across the network.

The target users for an application like this should be any average person who might want to

look up recipes on the web. Early adopters of IPFS technology are likely expected to be tech

savvy and interested in evolving the current state of the internet. Ultimately, however, for a

technology like this to be successful, the end user experience should feel as much as possible like

other similar services that already exist on the web. Because this technology is still in its early

stages, I think it justifies a slightly more complex user interface, as most people who will be using it can be expected to have more experience with computers. As the technology continues to

evolve and improve, these user experiences will need to be simplified and eventually integrate

seamlessly alongside any other similar service built using current web technology. Because of

this, we need to strive to make the interface for the application feel as user friendly as possible.

The potential users that we have access to for designing this interface will be primarily students

and faculty as Oregon State University, and possibly relatives that can be accessed through this

user population. This means that it can be expected that most of the people who may be

interviewed throughout the design process are likely to be more technically experienced and have an easier time grasping the concepts that this application hopes to address. This makes it critical that we as designers keep our minds open to the experience for less technical users.

Our team is the best fit for a project like this because our members are currently involved in

researching and operating IPFS based filesystems, and is interested in investigating various applications of this emerging technology with a focus on how it can be integrated alongside the

current infrastructure of the web. This project will serve as a great opportunity to proactively

investigate some of the challenges that will be faced as the technology grows into wider adoption. Designing an interface is an approachable task and can be completed within the time period of this term. The research done over the timespan of this project is likely to become part of actual applications that are developed in the future.

**Part 3**

3.1 What We Know

1. IPFS technology is in active development and is already accessible to the public (interested users just have to set up their own node to connect to the network).
2. Companies like Textile are already working on solving some of these issues. Textile’s team members are located all over the world. A handful of presentations going in depth about their use of the technology are available online, hosted by lead Data Scientist Carson Farmer, a professor at the University of Colorado Boulder.
3. The tradeoff for convenience is often giving up privacy. It is often unclear to the user where or how their data is stored. Finding a balance in providing transparency with a webservice that could potentially offer multiple ways to have an ’account’ without creating a cluttered or confusing interface is key.
4. There are many recipe apps in existence already that have fantastic user interfaces. This could provide a great launchpad for ideas for our own UI design.
5. Many webapps today are built around generating clicks for ad revenue. It is important to identify and understand what parts of these UIs are designed in a way to direct users to ads. By pairing this understanding with a goal to remove ads altogether, we should have plenty of room to create an attractive UI.
6. IPFS provides a unique opportunity for the web to grow in a new direction. Although they don’t have to, apps like this should encourage transparency and that should be reflected in the UI. We should take ideas from other IPFS apps and encourage others to take ideas from ours. This will help create the kind of external consistency needed to help a technology like this gain momentum

3.2 What We Don't Know

1. We don’t know what the user is looking for in a recipe. They might search for Spaghetti, but they actually want Gluten-Free Spaghetti.
2. We don’t know the reason a user selects a recipe.
3. We don’t know if user is looking for allergy free recipes.
4. Having IPFS becoming a new way to secure and store data, we don’t know if users will like the way it stores recipes by securing them under hash encryptions.