Home Inventory Management

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Problem Info

In households with multiple members, ensuring every member is aware of the state of consumable goods is impractical. Tracking inventory manually using paper and human memory is error-prone and does not scale well for households with more than 2 people. Here are some shortcomings of tracking home inventory manually:
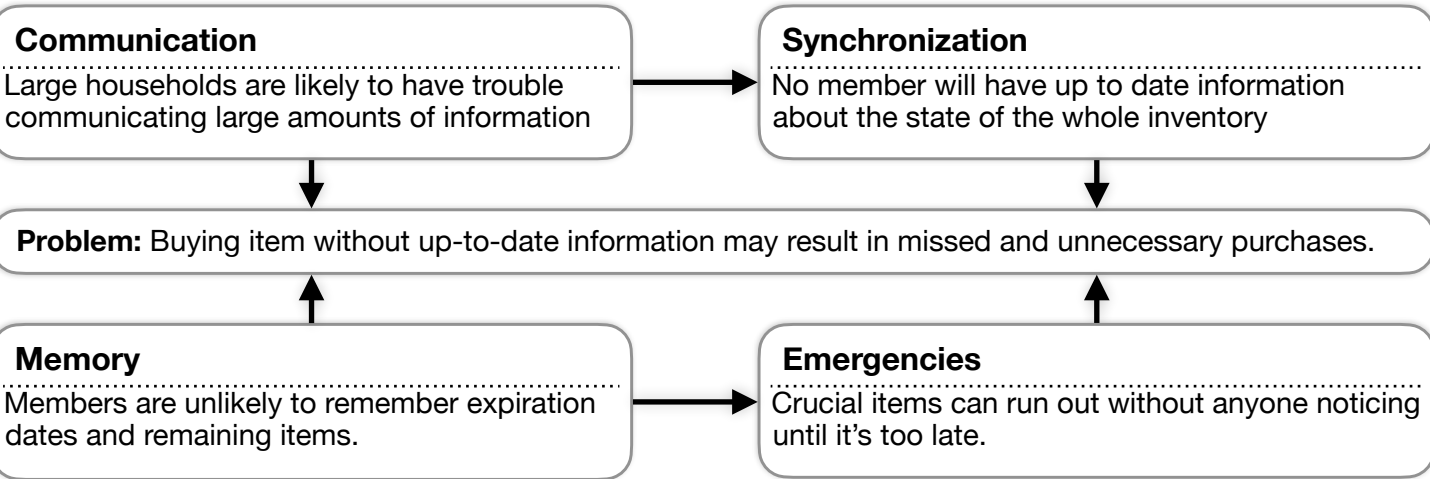
• Two members might notice that an item is missing and both purchase a replacement without consulting the other, resulting in a surplus.

• Members might incorrectly assume that others will take care of missing items, which results in items not being stocked for long periods of time.

• When buying groceries or supplies, it is often hard to create a list of missing items on the spot, which can lead to the exclusion of important items.

• If an item expires, it is usually not known until someone tries to use it. This can lead to items in storage being expired for a long time before anyone notices until it's too late.

Target

The goal is to create an online service with a web frontend that allows users to track the state of their home inventory (groceries, office supplies, bathroom supplies, etc). Particularly:

• Reduce the frequency of unnecessary duplicate purchases

• Reduce the frequency of missing items not being replenished

• Improve tracking of expiration dates

• Improve communication between members of a household

Causes

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┌─────────────────────────────┐        ┌─────────────────────────────┐
│ Communication               │        │ Synchronization             │
│ Large households are likely │───────>│ No member will have up to   │
│ to have trouble             │        │ date information            │
│ communicating large amounts │        │ about the state of the      │
│ of information              │        │ whole inventory             │
└─────────────────────────────┘        └─────────────────────────────┘
          │                                       │
          v                                       v
┌──────────────────────────────────────────────────────────────────┐
│ Problem: Buying item without up-to-date information may result in  │
│ missed and unnecessary purchases.                                  │
└──────────────────────────────────────────────────────────────────┘
          ▲                                       ▲
          │                                       │
┌─────────────────────────────┐        ┌─────────────────────────────┐
│ Memory                      │        │ Emergencies                 │
│ Members are unlikely to     │───────>│ Crucial items can run out   │
│ remember expiration         │        │ without anyone noticing     │
│ dates and remaining items.  │        │ until it's too late.        │
└─────────────────────────────┘        └─────────────────────────────┘
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Countermeasures

• Allow users to input and update information about items easily

• Allow sorting by priority, placement/use within the physical house, quantity, expiration date, etc

• Support for custom tags for easier organizing

• Fast sync to ensure any member of a home can see the latest information

• Inform users when crucial items are running low or when items are about to expire

• Integrate with online product catalogues to add item metadata and/or order products directly

• Organizers can decide which members can add and/or remove entries

• Simple interface (children and elders should be able to easily use the system)

Check / Evaluate

Project success depends on all core features being met on time and on users running their supply of items more efficiently. This is determined but not limited by the following criteria:

• Users don't run out of important items

• Users don't overspend on perishable duplicates

• Users don't let items expire because they forgot about them

Failure occurs if the system doesn't achieve its desired purpose. For example:

• The process of adding and updating entries has too much friction, resulting in users abandoning the application

• The tool doesn't actually result in measurably better management, for example:
  • Items still expire
  • Items still run out

These criteria can be evaluated with usage metrics from the system and direct user feedback obtained via questionnaires and surveys.

Act / Standardize

• User feedback will be taken into account to improve the system

• The experience and knowledge gained can be used in systems with similar requirements (internet connectivity, database management, synchronization between instances, etc)

• The technologies and knowledge obtained can be used to work on larger inventory systems for applications like shops and warehouses.