Concept Packet

Innovation with Used Laptops | 4.9.2012

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Concept Categories

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1. System
Middleman

Farmers will often buy used computers instead of buying ones designed for rough terrain. They will use sites like ebay instead of a reliable source; one that grades quality of the used product.
Replaceable laptop
Given the availability of these laptops, damage to a laptop in the field can be fixed by replacing with a “new” laptop
Wireless
Placing wireless routers all over the farm would give wireless access to every computer and enhance communication.
**Multiple Tech Outposts**
Several computer outposts on the fields and sheds so farmers, workers can gain instant access to any information instead of having on location and having to go back and forth.
2. GPS
LOCAL GPS SYSTEM
Using a triangulation of network signals to create a local GPS system.
Tracking the progress
Tracking of tractors or other farm vehicles (possibly automated) on these computers using GPS devices. This can help farmers optimize use of their equipment.
**GPS LOCATOR**

Using computers in conjunction with GPS devices to look for wet spots, patches of perennial weeds, sinkholes.
Monitor location of chicken coops

Coops need to be moved to specific locations on a grid to prevent chickens from eating their own feces, and to give feces time to absorb into the ground and fertilize.
3. Security
Alert

Communication device sends alerts to both the local authorities and other laptop stations providing the victims location.
Security Monitoring
Using the technology of these laptops to help effectively monitor the farm from a distance or in times of vulnerability.
Security monitoring system

Use monitors to view sprinkler systems and other automotive devices.
4. Employee Management
Monitor employees
Keep track of employees in terms of location and safety; some farms are very large, and injuries will not necessarily be noticed quickly without adequate communication
Employee Field Safety and Productivity

Allows farm manager / owner to quickly locate field hands / farm employees in case of an emergency, but also to monitor their productivity and task completion over great distances, geography.
Management Laptop that Interacts with cellphones

Farm managers use laptops around the farm to update and delegate tasks to distant volunteers.
Relay Instructions
To workers/volunteers through video, audio, text instruction etc.
Make the working process sequential.
**Improved Infield Communication**

An example of using certain parts to increase communication in the farm. Ex- louder speaker, anti glare screen, and a camera on outside of computer.
5. Data
Tests automatically based on scripts

These computers can be programmed to turn off or on based on their usage making them more energy efficient.
Data Collection
From different computers at different outposts and store it in one location (cloud).
Simulations on computers

In order to gauge how to increase yield. Making decisions based on these simulations
**Cataloging**

Farmers are required to keep track and catalog a variety of things about their animals.
Connecting to the internet for several purposes like weather, grain market prices, entertainment etc.
Tracking and Monitoring Chickens
Monitor chickens, egg output to better assess and treat any changes
Monitor Cows
Track milk output to better assess and treat any changes
Tracking Goats
Impending legislation regarding trackers in all goats; help to track location, whose goat is whose
**Pest Alert System**
Alert system for degree days; connect to the degree days website and send alerts for specific pests, etc.
Localized Degree Days
Using local data through temperature, moisture monitors, have more accurate degree day information; would be particularly useful in hilly farm area where there is more variation due to landscape
Monitoring Use of Supplies
Keep better track of pesticide and gasoline use to be more efficient and less wasteful with resources
Track Farm Equipment Location

Allows farmers and employees to track/locate equipment and machinery across the farm and schedule its use more efficiently, particularly if multiple employees use the same machines/equipment throughout the workday.
6. Measurement & Automation
Automated Crop Monitoring, Manager

Use a sensor to monitor crop information (moisture, temperature) to better manage irrigation systems in high tunnels and greenhouses to potentially save a crop during drought, extreme weather variation.
Water, Fertilizer, Pesticide Conservation and Automation
Offer a conservation tool for utilizing minimal water, fertilizer and pesticide within high tunnels absent of manual processes (e.g., physically turning on spigot, checking water / fertilizer levels)
Monitor outdoor temperature and moisture
Multiple sensors to monitor outdoor temperature and moisture (both ground and air) with data wirelessly transmitted to a single (or multiple) location
Sensors around farm relay information to laptop

Device collects and stores local information from both online sources and data monitoring stations to generate tasks to perform, increasing the precision and efficiency of farming.
Soil Testing
Continually testing soil moisture content, nitrogen level, pH level etc using probes specifically designed to measure this data. Several old cheap computers could be used for this purpose.
Green house monitoring
For new farmers, this software can act as the first training module. However, how does this product stay relevant as their knowledge develops.
7. Education
Information Stations

Engage farm hands with the proper information to do the job correctly the first time. Utilize the various database hubs around the farm that will access instructional information to educate the farm hand.
Information database and distributed QR tags

The QR tags can be attached to tools, machinery, animal equipment, etc. which can be scanned at various database hubs around the farm that will access the specific instructional information to educate the farmer.
**Google Goggles**

Utilize software that can cross-reference images to provide more information and ultimately a better understanding of the subject.
Farming educational software that grows with the farmer

For new farmers, this software can act as the first training module. To stay relevant, the software adapts to their level of knowledge.
8. Unique Concepts
Education for people in rural areas
These computers could provide an educational resource for people in low income or developing areas.
Farm In a Backpack
A farming kit that includes all the materials need to farm, including a laptop that can be preloaded with tutorials and information.
Simplified keyboard
Creating a simplified keyboard that makes it easier for people to use, especially people who may not be familiar with a traditional keyboard.
Accessories on tractors and other farm vehicles
These computers can have several uses - internet, communication with workers on the farm etc.
Shock Proof Cases

Farmers feel they cannot use technology on the farm because it is too vulnerable to the elements; combat this by providing shock proof, water proof, durable cases for laptops, smartphones, tablets
Use LCD screens from computers
LCD screens use 10-15% less energy than traditional lighting used to grow plants indoors; for farms doing a significant amount of growing indoors, will lead to big energy savings
9. Games
Entertainment

Farmers/workers can have access to entertainment – movies, games, music – on the field especially during breaks.
Animal Entertainment videos
Videos/ music entertainment for animals welfare
Educational games for training/safety
Using old laptops combined with games and quizzes to effectively teach
**Game On**

Using computer stations found at various sites, develop a point tracking system that updates scores and give out reward based incentives.
Gaming to farming
Using gaming to bridge the communication gap between farmers. This can also be a great way to provide competition and entertainment.
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