

XO Laptop: Bee Recording Project

Here is the description of how this program will run.

It can record audio every certain amount of time. I can set it to be every minute, hour, day, month, or specific time. The closest it gets is in every minute.

Duration: 15sec

Size: ~2.5 Mb

Format: wav

The time, duration, format, and location could be changed. After the program is set up, there is no need to touch it again. It will just keep recording and pausing.

How this was accomplished:

write a script: record sound (a record for this instance), after 15 seconds, stop the program (kill command in Linux) use cron, a Linux scheduling tool, to keep track of the time.

Sheng

Note: [Please read about my work on this project and Internship](http://content.nortellearnit.org/blogs/summerinterns2008/tag/sheng/)
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Using the XO as a Research Tool

Set up the OLPC XO to automatically gather information/data periodically for research projects.

Usage goal: Make periodic recordings of audio, video, or still images, for later analysis.

In my particular use case, I would like to record the sound of honey bees in their hive. The sound they make varies over the course of a day and over the course of a season. It is affected by many factors, such as the presence or absence of a healthy queen, diseases, food supply, temperature, etc. Thus, the information, if analyzed in real time, could provide a quick indication of problems within the honey bee colony. For starters, I would like to record 30 seconds of audio every hour, indefinitely. I expect that once I have determined the bees' patterns of sound, that much less data would be adequate, possibly 10 or 15 seconds of audio every 4 hours might be enough.

Other examples might be recording the growth of a plant over time, recording the path of the sun through the sky over a day and over the seasons, etc.

Interface actions

Choose audio, video, or still pictures
Set other recording options: e.g. quality, file format, etc.
Choose start date and time
Choose end date and time
Choose frequency of recording
Choose duration of recording (if audio or video)

Example

Select recording medium: audio recording.
Start date & time: June 20, 6:00 am
End date & time: June 30, 6:00 am
Frequency: every 60 minutes and 0.00 seconds
Duration: 15 seconds

Store the data in a location of the user's choice, either on the OLPC, a thumb drive, or on a network drive or in a location accessible over the internet.

Possible later application: capture data from other sources or sensors, such as temperature probes, perhaps plugged into the USB port.
Possible design option: make the capture events motion-sensitive or sound-sensitive.

For bonus points:

Make the live audio or video accessible, via internet, to someone in a different location.

Michael,

I'm writing you in connection with your LearnIT summer job program. I understand from Jeff Elkner that you will employ Sheng Zhao and that you may be interested in having them develop the application that I had earlier discussed.

I believe that the application will be useful not only for me but also for any student who uses the OLPC XO for science projects needing automated periodic data collection using audio, image, or video data.

In my personal case, I'd like to use the XO to collect audio samples periodically from my colony of honey bees. It is an observation hive I keep inside my house where there is power and wireless internet access. I have reason to believe, from both the research literature and discussions with other beekeepers, that the sounds the bees make are correlated with their health. As Jeff says, "this is just the kind of STEM project we are looking for. It brings together science, engineering (building a hive inside a house), and computer science."

Specifically I'd like to have the software modified as described below. I believe this is not a major task, but I know that software projects always take more resources than it seems they ought to.

Thank you.

Frank Linton