SENSOR POD

Taiwan Forestry Research Institute (TFRI)

Ariana Tsai

July 20, 2012 (Week 4)

PROPOSED RESEARCH

- To set up an Android-based system that will monitor the aspects of a rainforest, such as humidity, temperature, and wind direction.

- Use Samsung Galaxy Nexus to capture audio, pictures, and videos.

- Use DataTurbine to send any captured media from the rainforest to different stations for more analysis.

- Use an IOIO board to maintain and be the basis of the sensors.

PROGRESS (FOR WEEK 4)…

- Attended Skype meeting on Wednesday

  - Found out that the Sony recorder is not detected by the system because of the lineout wire; output and input bands do not match up properly. The recorder seems to require four bands to connect successfully to the phone. The stereo mic would also provide some complications.

  - Ultimately, we've decided not to use the Sony recorder as an amplifier because there is another problem that we would encounter – the battery. The recorder uses alkaline batteries, which provide a stable energy output, but if the recorder draws energy from the board instead, the power wouldn't be as stable; plus, power sharing may be a source of noise. We will use the headset, which was the original plan.
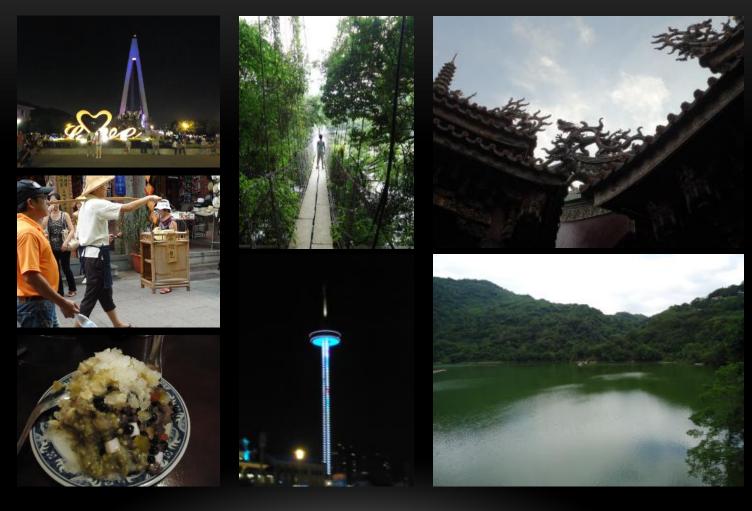
…PROGRESS (FOR WEEK 4)

- Separated the audio recorder of dtControl into a separate app, then used Airdroid to listen to the sample recordings on the phone. Sent sample recordings to Dr. Wang so that the files can be analyzed. We need to check if the sample rates are good enough.

  - The phone only runs a media scan every time it powers on and powers off in order to detect the files. Usually, to view content on the SD card, one has to use a file explorer (Windows Explorer on the Windows OS). Therefore, if I save new files on the SD Card, I'd have to restart the phone in order to see the new files. Using Airdroid, I can view and listen to the wav files immediately, which is very handy.

  - After I listened to the wav files, I found that the sound quality is actually pretty good –much different than the dinosaur roaring I would hear on RDV, the program we use to view data. It seems like RDV would somehow play back the audio at a sample rate of 8 kHz, whereas the phone would play back at the original (and target) sample rate of 44.1 kHz.

    - Since there's a problem with the RDV audio play back, I tried to alter the class files (messed around with GenericSoundSource as well). However… it didn't make a difference. Maybe I'm changing the wrong properties.

PLANS (FOR WEEK 5)

- As an extra, try to write a preliminary code for sending the IP camera data to RDV through the Android phone (using the dtCamera code as an example).

    - Looked into how IP cameras usually transmit data. They can send images to the Android phone every certain period of time.

- Test the system with Sara. (Maybe the battery will decide to behave for us this time… eek.)

- Continue figuring out which properties to modify for RDV. It wouldn't be convenient having to move the files off the phone's SD card every time.

- Try changing the sampling rates for the weather station.

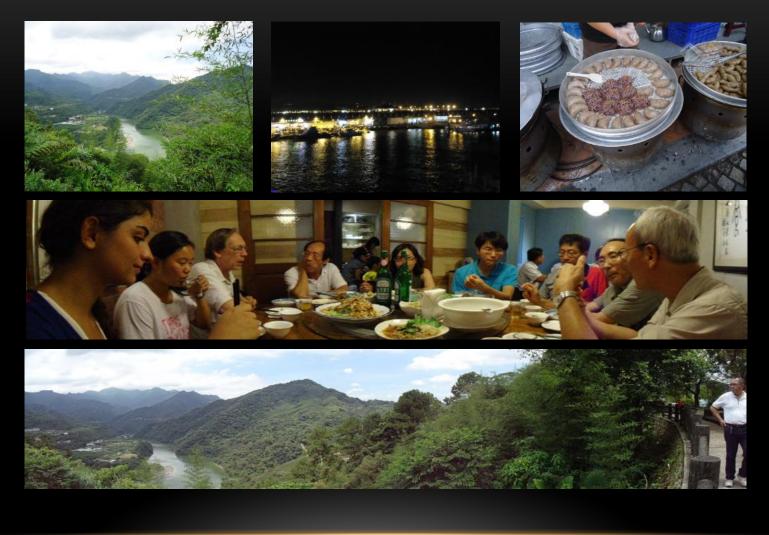- Go to Hong Kong and hopefully conclude all the visa shenanigans!

CULTURE

Pictures of Tamsui Fisherman's Wharf (the tower-like structure is actually a revolving restaurant), Jiao-Ban Mountain, Sanxia Old Street, and some shredded ice.

CULTURE

Pictures of Jiao-Ban Mountain, Tamsui Fisherman's Wharf, "oh gue kiao" made out of taro from the Yingge District, and Dalai Xiaoguan.

ACKNOWLEDGEMENTS