QR Codes

What are they are?

Short for "Quick Response," QR codes are simply two dimensional barcodes that can quickly pass a message to a smart phone when they're photographed. Typically, they'll provide an email or web page address, but they can also reference Google Maps locations, a full businesscard-like listing, or even a buy it now link for PayPal.

Why are they useful?

Since they're very easy for people with smartphones to access, QR codes are valuable anywhere you might want to provide more information than can be immediately passed on. Typically, they're used on reference or promotional materials where the author wants the reader to be able to remember the material in the future by providing a link that can be stored on the phone, or to be able to take some immediate action on the material presented such as signing a petition, or to be able to have access to additional resources.

How do they work?

The QR code itself is simply a machine-readable encoding of the material to be passed on. The phone needs a camera, a QR scanner application, and access to the internet. The user opens the scanner application which uses the camera so that the user can photograph the QR code. The scanner then decodes the information, determines what kind of information is being communicated, and takes the appropriate action. For example, if the QR code represents a phone number, the scanner will pass the number to the dialer to make the phone call. If the QR code represents a web address, the scanner will pass the address to the browser to open the site. To the user, shooting the QR code is a convenience that reduces the need to type.

What are the applications?

QR codes can be used on posters to allow an interested passerby to access additional information, or to reserve tickets to an advertised advent. They could be placed outside classrooms or labs to provide up to date schedule information or to facilitate making a reservation. Lab equipment can be tagged, to help with reservations or usage requirements. Objects in a museum can have tags placed nearby that link to videos, to provide an assisted tour.

Mobile data capture

What is it?

By their nature, mobile devices allow communication away from the office, desk and traditional lab. Since smartphones and tablets can access web applications, spreadsheets and databases, researchers can use them to capture data in the field. In addition, since many devices also have GPS, cameras and voice recorders built in, detailed and multimodal records can be created and filed on location, and by multiple people simultaneously.

Why is it useful?

Mostly as a convenience: Since a single mobile device can capture text based notes, audio notes, pictures and location information, researchers are freed from the record-keeping errors of integrating the logs of multiple devices, as well as being freed from having to carry multiple devices into the field. By allowing the researcher to update directly a database that exists back in the office,

transcription errors are reduced. By minimizing the intrusiveness of carrying multiple device, researchers working with human subjects become less intimidating.

What are the applications?

A botanist performing a field survey can conveniently capture a site photo, take notes and record geographic location information. Students collaborating on a project can update a shared website or spreadsheet from their homes over spring break. An anthropologist can conduct interviews, photograph the subject, and log notes all from the street, or further afield.

Video streaming/Video conferencing

What is it?

The Jetsons! With the high-speed data connections available to smartphones with built-in cameras, video phones that fit in your pocket – or on your wrist – are finally a reality. With video streaming, a smartphone can be used to send one-way live video to one or many recipients.

Why is it useful?

Beyond the obvious benefit of making the traditional affordances of video conferencing, such as non-verbal cues and better communication, available anywhere and anytime, portable video conferencing allows for just-in-time consulting and collaboration, and collaboration in locations that have traditionally been inaccessible. Video streaming provides real-time event broadcasting.

How does it work?

Smartphones equipped with cameras and with access to the high-speed phone networks can make use of applications like Skype that have recently been migrated from the desktop computer to the mobile device. Many devices now have front-facing cameras to make it possible to see and be seen simultaneously. With video streaming, applications like UStream running on the smartphone allow the user to send a live video feed to a webpage so that one or many people can see it as it happens. The resulting video can also be recorded for later playback.

What are the applications?

A research can consult with a librarian directly from the stacks. A librarian tied to a desk can help multiple researchers in several parts of a library. An expert can see mechanical work being performed on location by a technician and provide guidance. A faculty member can assist a student with a lab or experiment from off-campus. Video streaming can be used to broadcast/simulcast news, public speakers or events as they happen, or to allow a skier to mount a real-time helmet camera.