I. Research Overview and Outcome

INTENT

This architecture will describe how to achieve a TCP connection which will receive data and control a wireless sensor network from an Android smartphone application in a specific data network cluster base station or mobile sink for data collection and manipulation purposes. The application is also suitable for many implementations such as patient monitoring, population alert and monitoring in severe weather threats, and a wide variety of other scenarios.

OUR SOLUTION

Proposed and currently under development is our Android-based networking architecture to enable the deployment of wireless sensor networks comprised of sensing hardware manufactured by Crossbow Technology Inc., which utilizes TinyOS for transmission between the motes and the base station. The smart phone with which we developed the application utilizes the Android 1.6 operating system. All components are in place to provide the means with which to access patient and client data, observe vital information from wireless sensor networks, providing important information to people about weather threats and warnings, and researchers with vital information about the patterns these hazards cause. Our application will also provide qualified medical and health care personnel with a means with which to access patient and client data, observe vital health attributes of these patients; and a great diversity of other information wherever they have the possibility to connect to the Internet or over a local network connection.

There are a great number of wireless sensor systems available for use in many different scenarios. For our research, we have implemented a wireless sensor network comprised of sensing hardware manufactured by Crossbow Technology Inc., which utilizes TinyOS for transmission between the motes and the base station. The smart phone with which we developed the application utilizes the Android 1.6 operating system. All components are in place to provide the means with which to access patient and client data, observe vital information from wireless sensor networks, providing important information to people about weather threats and warnings, and researchers with vital information about the patterns these hazards cause. Our application will also provide qualified medical and health care personnel with a means with which to access patient and client data, observe vital health attributes of these patients; and a great diversity of other information wherever they have the possibility to connect to the Internet or over a local network connection.

II. International Experience

MILANO

TIP: Two highly recommended restaurants here are Speranza and Santa Lucia. After hours internet and some good food can be had at the Barcelona Cafe.

TIP: Look on the back streets for excellent places to relax and enjoy fantastic Italian cuisine!

TIP: Make a plan ahead of time to avoid hours of headaches and stress: book tours online prior to the trip (i.e. the Vatican, Colosseum, etc.)

TIP: University of Milan - This summer I had the opportunity to work for seven weeks with the University of Milan on a challenging and successful Android-based networking project. The University has many locations spread throughout Italy and Europe each offering fully equipped labs, facilities for Augmented Reality (AR) Wireless Sensor Networks (WSN), the Flexibility and Security Department attempted to assist them previously for which I am extremely grateful.

VERONA

TIP: Romeo and Juliet; Purchase a ‘Verona Civic Card’ to save a lot of entrance fees and bus fares.

TIP: Bring some rain gear and avoid purchases in the main tourist areas, back to the side alleys for some terrific finds!

TIP: Verona is known for its gripping love story which inspired Shakespeare’s Romeo and Juliet. Purchase a ‘Verona Card’ to save a lot of entrance fees and bus fares.

TIP: Be aware to avoid the ‘Spanish Quarter’, watch for pickpockets, make sure to stay hydrated, and fully charge your camera batteries.

CONCLUSIONS

We have shown that there exists a vast quantity of possible scenarios for the implementation of WSNs to monitor our surroundings. These networks provide us with important information and statistics that help us better understand the patterns that occur in nature and supply us with the ability to notice when some irregularity exists within a given pattern. Depending on the environmental conditions, WSNs provide us with a highly adaptable solution with which we can easily monitor specific attributes with only minor modifications to the sensor board or simply weather-proofing theTweet them to prevent corrosion or water damage to the internal components.

After our observance of several implementations of WSNs in both personal area networks and natural disaster mitigation, we observed the need for some technology that would be able to access the sensed information via a wireless connection. Our solution is based on the current widespread use of cellular phones, specifically for emergency situations, the Android-based smartphone. Using our highly adaptable application, individuals are able to read and manipulate the data from these networks via a local wireless connection or remotely through an internet connection.

CONTEXT

Many facets of our lives are in need of monitoring by sensor networks whether it is on the local level such as personal medical sensing or on a global scale such as monitoring weather patterns. With the integration of these networks, we also need the ability to monitor the data transmission and the adjustability of the algorithms they implement from both local and remote locations to avoid hazardous situations or possibly to compensate for inadequate numbers of qualified and trained personnel.

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