H-J. HUANG, H-Z. FENG. ***Location services research travel patterns of older persons based on Zigbee.*** *Gerontechnology 2014; 13(2):213;* doi:10.4017/gt.2014.13.02.114.00 **Purpose** This paper introduces a network-based a global positioning system[1] that allows caregivers to know the location of the elderly or children. Using this device, the caregiver can search for, locate, and track individuals as well as assist the elderly or children with travel problems. It has great social significance by giving older people greater independence. **Method** The Internet of Things (IOT) uses new technology and creates a new industry designed to improve the care of the elderly; it provides them with intelligent identification, positioning information, while allowing tracking, monitoring and management. The service uses Zigbee's IOT wireless based communication technology to achieve the function locating the position of the target person using wireless communication technology. It features a high level of accuracy, is easy to use, has low power consumption and a low data rate, had low cost, uses portable devices. The device uses RSSI positioning technology, whereby the signal strength is measured by the by the receiver allowing measurement of the distance to the target, and then calculates a location based on relevant data. The equipment adopts the CC2430 chip to provide each pendant device with a unique identification code delivering a unique set of identity information. **Results & Discussion** The portable device broadcasts the device ID and RSSI (Received Signal Strength Indication) information to a portable device base station. The collected values together with their own ID information are sent to the server. In the background, the server at each base station will report its data and calculates the coordinates of the target unit to achieve the positioning function. This elderly personal and child tracking and positioning system uses Zigbee as the wireless network data transmission system. The network structure uses a combination of wireless and wired technology that works to ensure the stability and reliability of the system. This set of services provides the client with a search and rescue service model and scheme, with incomparable advantages when compared to the traditional model and scheme. The service provides adult children of the elderly with much needed help during travel because they do not have to worry about others not being able to find their parents or become anxious about not knowing their exact location, providing great convenience to everyone involved. Simultaneously, it provides significant social benefits, helping the elderly feel more socially secure. The comfort provided to the elderly will enable them to be more self-reliant and energetic, while allowing an aging society to maintain its momentum, to reduce the need for health resources for the elderly and lighten the burden of the state. This improves improve the quality of life of the elderly, and enhances their sense of happiness.

Reference

1. Kim W-J, Park J-M, Yoo J-H, Kim H-J, Park C-G. IEEE Transactions on Cybernetics 2013;43(4):1189-1198; doi:10.1109/TSMCB.2012.2226151

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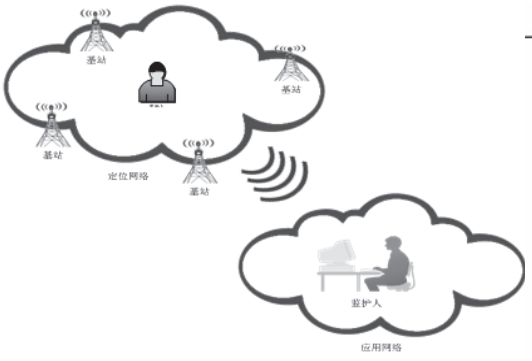

Figure 1. Schematic model

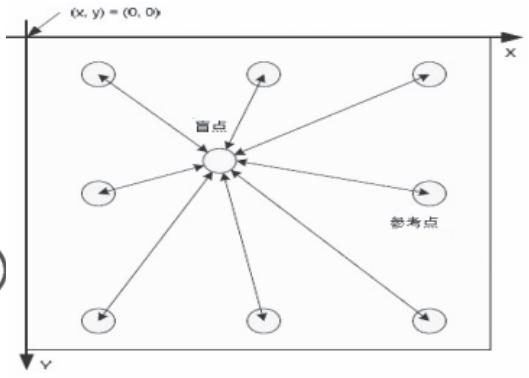

Figure 2. Schematic RSSI (Received Signal Strength Indication)