Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115

AUTOMATED ROBOTIC RECEPTIONIST WITH EMBEDDED TOUCH SCREEN

D.Vijendra Babu, V.Saravanan, Priyaranjan Kumar, Suraj Singh
ECE Department, Aarupadai Veedu Institute of Technology, Vinayaka Missions University, Paiyanoor-603 104.Chennai.Tamil Nadu.

ABSTRACT

The major problems faced by new Visitors in Educational Institutions, Public Banks & Conference halls is the difficulty in the guidance to reach their destination. Receptionists are needed to be trained effectively. Human behaviors are unpredictable and they may result in wrong in guiding a visitor with their punctuality and politeness. This model Robo Receptionist is an Automated Robotic Reception system that takes the role of a Receptionist and guides the incoming Visitors by queuing them to their respective destinations/officials by showing route maps with the help of touch screen color panel and multilingual voice generation. It is also capable of recording the Employee signature and does Real Time signature verification to maintain a Digital Attendance book.

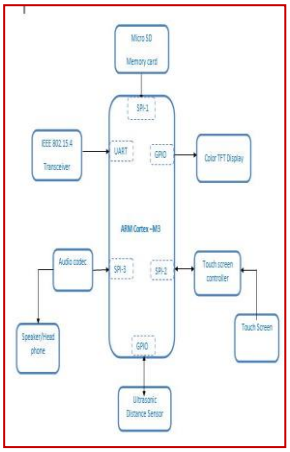
Key Words: Microcontroller, Robo Receptionist, Touch screen, Map

INTRODUCTION

This smart robot will be able to do the following receptionist chores on its own. The Robot scans the space before it using sensors and if it finds a person moving it greets them with a welcome message in a clear MP3 quality voice. Followed by the Robot will separate the Visitors into regular Employee or a general Visitor. It shows the greetings image and then renders an on screen keypad with letters and prompts the user to enter their signature on the Embedded Touch screen panel display if they are an Employee or just enter their Name and the purpose of visit if the person is a general visitor. Figure 1 shows the ARM Cortex Reception unit. Figure 2 shows the ARM Cortex Visitor unit.

The robot also assigns a visitor ID number to each of them. The entered name along with the time will be saved in memory. After this process, the Robot will present a list of names such as Principal, Chairman, etc. whom the Visitor want to meet or a list of places such as Medical Dispensary, Seminar room etc. where the visitor want to go. It asks the user to touch their choice. Once the user chooses the right option on the screen, the system will acknowledge with Voice and it shows a route map of that building for the user to reach their destination spot or the place where the respective official would be normally available.

Before this process more importantly it sends the Visitor request through a Wireless network to other Slave units fixed near the official persons that will display the Visitor name and their purpose. The official can communicate with the Robot (Call or Hold) using the push buttons on his device and the robot will announce the visitor ID audibly and manage them in the reception. Pressing a button on the Robot will cause the system to show the signature employee names along with the corresponding time. The Robot is also able to handle multiple languages and the user will be guided in his language of choice. Figure 1 shows the ARM Cortex Reception unit. Figure 2 shows the ARM Cortex visitor alert unit.



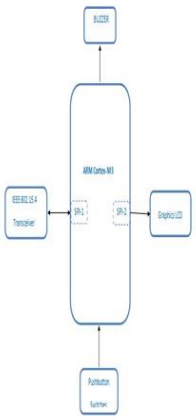


Figure 1.ARM Cortex Reception Unit Figure 2.ARM Cortex Visitor Alert Unit

ARM CORTEX-M3 PROCESSOR

The LPC1313 are ARM Cortex-M3 based Microcontrollers for embedded Applications featuring a high level of integration and low power consumption. The LPC1313 operate at CPU frequencies of up to 72 MHz the ARMCortex-M3 CPU incorporates a 3-stage pipeline and uses Harvard architecture with separate local instruction and data buses as well as a third bus for peripherals. LPC1313 IDE will provide software engineers a quick and easy way to develop their applications an integrated JTAG Debugger.LPC1313 is a new, low-cost development

platform available from NXP, it can build an executable of any size with full code optimization, and it supports a download limit of 128KB after registration.

The ARM Cortex M3 processor is the industry leading 32-bit processor for highly deterministic Real-time applications and has been specifically developed to enable partners to develop high-performance low-cost platforms for a broad range of devices including Microcontrollers, automotive body systems, industrial control systems and wireless networking and sensors. The processor delivers outstanding computational performance and exceptional system response to events while meeting the challenges of low dynamic and static power constraints. The processor is highly configurable enabling a wide range of implementations from those requiring memory protection and powerful trace technology through to extremely cost sensitive devices requiring minimal area.

RESULTS & DISCUSSIONS

Figure 3 & 4 shows the Touch screen display & Options shown to the Visitor .Figure 5 shows the Visitor Display unit. Figure 7 shows the Destination Route map. Robo Receptionist is an Automated Robotic reception system that takes the role of a receptionist and guides the incoming visitors by queuing them to their respective destinations/officials by showing route maps with the help of Touch screen Colour panel and multilingual voice generation.

Figure 3.Touchscreen Display

Figure 4.Display listing the options for Visitor

Figure 5.Touchscreen Display

Figure 6.Visitor alert unit

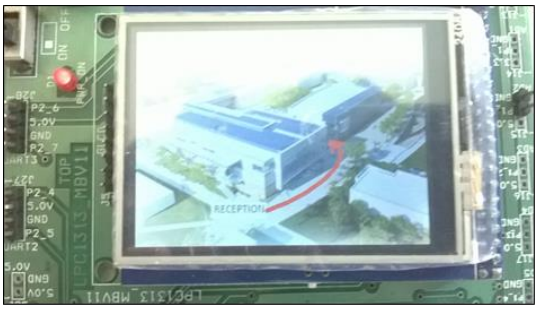


Figure.7.Destintaion Route Map

REFERENCES

D.M. Amodio and C. D. Frith, Meetings of minds: The medial frontal cortex and social cognition, Nat. Rev. Neurosci., 7, 258–277, 2007.

D.Vijendra Babu, Dr.N.R.Alamelu, Implementation of Energy Efficient Wavelet Transform in Spartan 3E FPGA, International Journal on Computer Applications (IJCA), Vol.12, Issue No.9, February 2010.ISSN No.: 0975-8887. DOI-10.5120/263-422

D.Vijendra Babu, Dr.N.R.Alamelu, P.Subramanian, N.Ravikannan, EBCOT using Energy Efficient Wavelet Transform, Proceedings of International Conference on Computing, Communication & Networking '08 (ICCCN-08), December 2008,IEEE Explore. 10.1109/ ICCCNET. 2008. 4787746

D.Vijendra Babu, P.Subramanian, N.Ravikannan, Micro Blaze and UCLINUX Based Data Acquisition on SPARTAN 3E, Proceedings of International Conference on VLSI & Embedded Systems '08 (IC VLSI '08), February, 2008, 1-4: ISBN: 81-8424-300-6.

H. Attias, Planning by probabilistic inference, In Proc. 9th Int.Work- shop Artif. Intell. Stat., KeyWest, FL, 2003.

J. Allen, Natural Language Understanding, 2nd ed. Redwood City,CA: Benjamin-Cummings Publishing Co., Inc., 1995.

J.L.Austin, How to do Things with Words. New York: Oxford Univ. Press, 1962.

M. Arbib and G. Rizzolatti, Neural expectations: A possible evolu- tionary path from manual skills to language, Commun. Cogn, 29, 393–424, 1997.

M. Arbib, From monkey-like action recognition to human language: An evolutionary framework for neurolinguistics, Behav. Brain Sci., vol. 28, pp. 105–121, 2005.

M. Bacharach, Beyond Individual Choice,N.GoldandR.Sugden, Eds. Princeton, NJ: Princeton Univ. Press, 2006.

M.A.Arbib, Asentenceistospeechaswhatistoaction?, Cortex, vol. 42, no. 4, pp. 507–14, May 2006.

M.L.Anderson, Neural reuse: A fundamental organizational principle of the brain, Behav. Brain Sci., 33(4), 245–266, 2010.