



REVIEW OF BORDER SURVEILLANCE SMART SENSOR DESIGN SCHEDULING FOR MULTIPLE TARGET TRACKING

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ABSTRACT

This paper aims to design a next generation intelligent ultra-small system dust like wireless sensor motes which has a processor with many sensors onboard, to track any enemy intrusion across borders and battlefields. Large Smart dust motes can be used within a specified large area in a short hours by human. The motes can be formed as a small deployable network. The mote network track the intrusion detection and classifies the intrusion into vehicles or individuals and groups. Onboard hardware includes vibration sensors, seismic sensors, magnetic sensors, acoustic and thermal signature recognition sensor, and a microcontroller for processing these sensor values. A radio transceiver is used for communication over a wireless network. The system process the sensor readings, and the targets were classified. The following history can be showed in the Liquid Crystal display attached to the central monitoring unit. The central monitoring node is the main parent node in a peer to peer wireless network. The system dust motes do communication with central parent node using wireless radio network. The greatest threat to national security is border crossing terrorism. Regular forces or even satellites in these border areas cannot be monitored these terrorist intrusions as the tracked area is quite large and dense. This paper provides an innovative and effective solution for the above problem.

Key words: Sensor, Scheduling, Surveillance, Security, Tracking.

INTRODUCTION

An embedded system is a dedicated function within a larger electronic system, both hardware and software often with real-time computing problems. Many devices are controlled by Embedded systems today. Most of all microprocessors are made as embedded systems. This is got at spending some of the price of limited processing resources, which make them significantly more complex in program writing and to interact with other systems. However,

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by building intelligence mechanisms on top of the hardware, taking advantage of possible available sensors and the existence of a embedded unit networks, one can both optimally manage available resources both at the unit level and network levels as well as provide augmented functions, well beyond those available. In this paper a system for tracking surveillance for security purpose is designed with embedded systems.

EXPERIMENTAL

Literature survey

R. Bellazreg (2013) in his paper “Border surveillance using sensor based thick-lines” explained as follows. Wireless Sensor Networks (WSNs) are being used in many applications ranging from target surveillance in war fields to smart way of home networking. From the recent applications, in which the WSNs are used, we can find the border monitoring applications. The main aim of this class of applications is to monitor a country border and track by detecting the presence of the intruders near the border line. In this paper, we propose a global framework based on WSNs to design such applications.

Proposed system

In this proposed system we are going to explain border surveillance using the transmitter and receiver to safeguard the border. The transmitter block diagram is explained in figure. It has microcontroller, PIR, Temperature sensor, acoustic sensor, flash memory and zigbe. Circumstances that we find ourselves in today in the field of microcontrollers had their beginnings in the development of technology of integrated circuits. This development has made it possible to store hundreds of thousands of transistors into one chip.

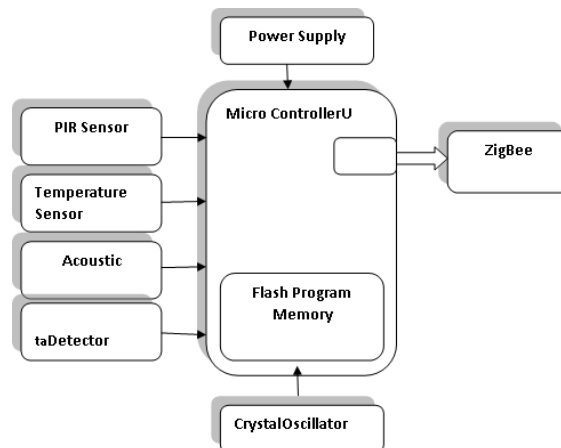


Fig. 1: New design of transmitter block diagram

the 5v DC. This Receiver helps us to get the output from zigbee which is transmitted from transmitter to the receiver.

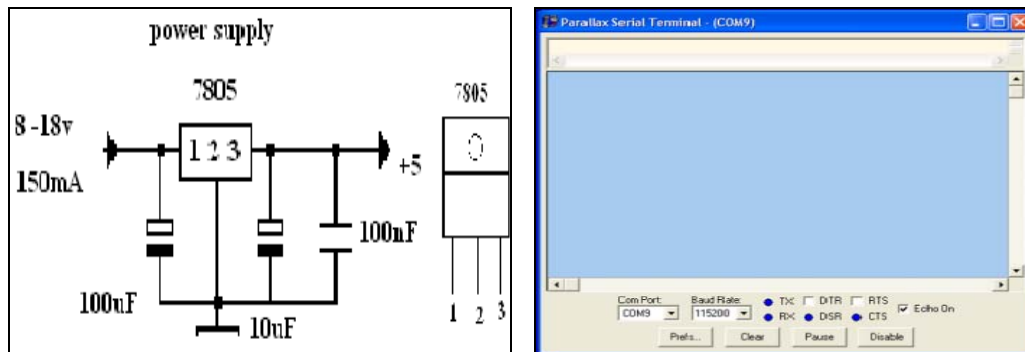


Fig. 4: Circuit diagram of the power supply and parallax serial terminal transmitter

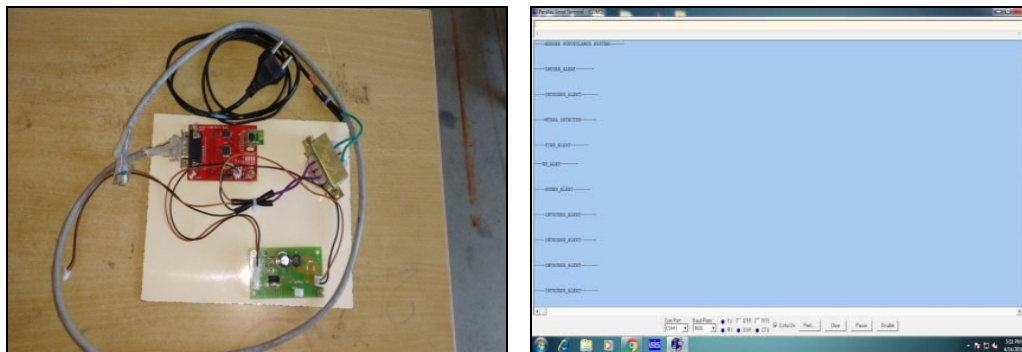


Fig. 5: Receiver and output from parallax-serial-terminal

The design of a next generation intelligent ultra-small dust like wireless sensor motes carried out here. It has multiple onboard sensors and a processor. The inputs are obtained from the user. With this process using the serial communication cable it is

connected to the pc. Then with the help of parallax-serial-terminal software the output has been noted.

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