A SYSTEM FOR MONITORING AND CONTROL THE HYDRO-METEOROLOGICAL PARAMETERS VIA GSM/GPRS/EGDE NETWORK

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ABSTRACT: *This article refers to the supervision and control information and data remotely over the GSM, GPRS, EDGE. The goal of surveillance is to gather meteorological data, to aggregate assessment.*

Keywords: GPRS, GSM, EDGE, GPS ,CAN, protocol ,web, at-command

1. INTRODUCTION

Currently in Vietnam, Weather monitoring is still rudimentary, for Convenience and Accuracy, there should be a system which can collect the data automatically. Our system consists of three main parts: data acquisition circuits, data circuits and Website.
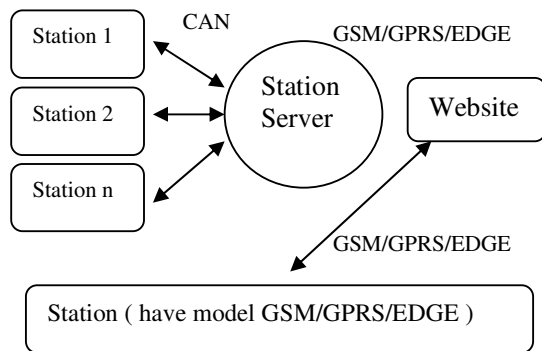

Fig 1. System network

The design system depend on the distance near the station layout and coordinate the communications. In the wireless environment and can communicate at close range (under 1km), we arranged with the network communication system CAN. CAN network is transmitted to 1km away and eliminate possible interference. In the further stage, we allocate the communications GSM, GPRS, EDGE, the communication can be anywhere with electromagnetic waves it is convenient to be located in remote places.

2. OVERVIEW OF SYSTEM

2.1. Introduction to collect rain sensor

In fact, the rain sensor measures the volume of rainwater, then interpolates to the amount of rain. Figure 2 is a rain sensor manufactured by us:
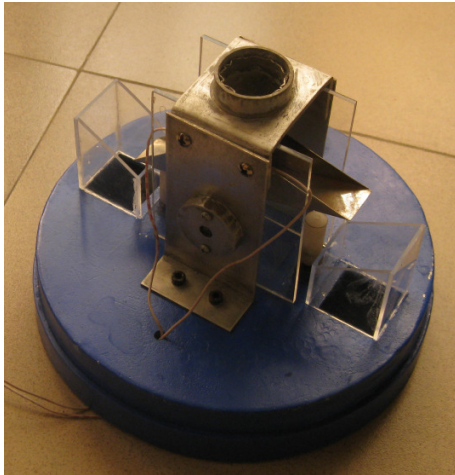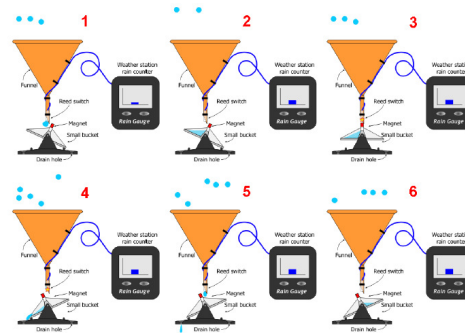
(a) Old sensor

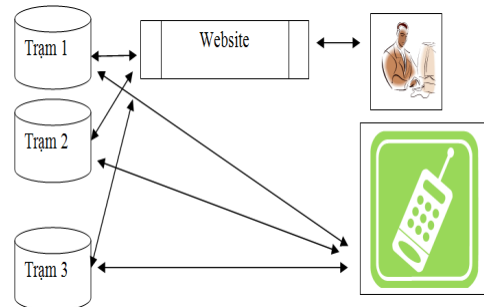(b) New sensor

Fig 2. sensor for system

Fig 3 described how the operation of the sensor flip bucket

Fig 3. The principle of the sensor flip bucket

2.2. System Introduction

The diagram below describes an weather monitoring and control system that we have developed for a urban drainage company in Ho Chi Minh City .
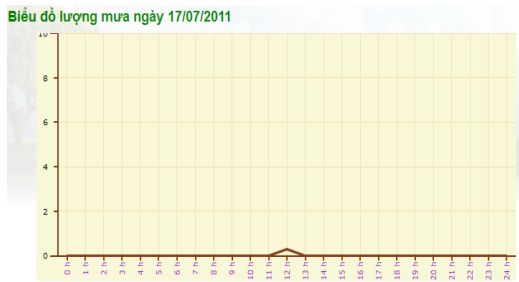

Fig 4. Diagram rain gauge system

The Website use PHP language , SQL, Ajax, JavaScript, CSS. The hardware use DSPIC33 and SIMCOM548C. To send and get data, they programe with At-comand. The Comunication on the UART of DSPIC33. To use internet, they configure SIMCOM: IP, DNS, ARP, method…

Website has the ability to store, exported excel file, plot the information on rainfall:

Thống kê lượng mưa ngày 17/07/2011

Chủ nhật, ngày 17 tháng 7 năm 2011

1. Trạm Dương Quảng Hàm

Đợt 1: 12:42 - 12:52 :**0.3 mm.**

Tổng cộng: 0.3 mm.

Fig 5. Information rainfall stations Duong Quang Ham

Biểu đồ lượng mưa ngày 17/07/2011

Fig 7. Graph of rainfall stations in Duong Quang Ham

Bảng liệt kê chi tiết lượng mưa ngày 17/07/2011

Thời gian	Giá trị
0:00	0 mm
0:05	0 mm
0:10	0 mm
0:15	0 mm
0:20	0 mm
0:25	0 mm
0:30	0 mm
0:35	0 mm
0:40	0 mm
0:45	0 mm
0:50	0 mm
0:55	0 mm
1:00	0 mm
1:05	0 mm
1:10	0 mm
1:15	0 mm
1:20	0 mm

Fig 8. Details of rainfall stations in Duong Quang Ham

3. ACTUAL RESULTS

Rain gauge system works well and has been used to replace the aging mechanical systems. Here are the pictures of the results was carried out:

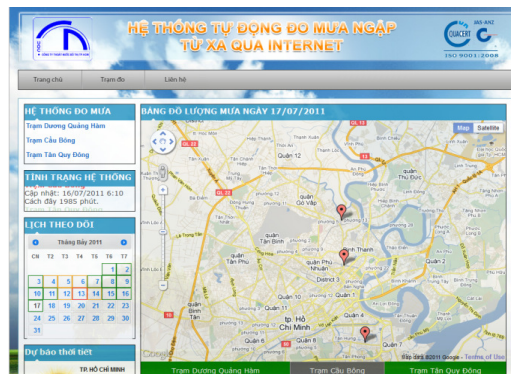**Fig 9.** Installation of stations in Tan Qui Dong, Duong Quang Ham, Cau Bong and key laboratory DKS & KTHT.

Fig 10. Data station information on the Website 3 www.giamsattuxa.com.vn

4. CONCLUSION

The system gathers meteorological information more accurately and conveniently. He doesnt need to go to the station and do statistical measurement.

This helps reducing the risk of life, money and properties, Saving time, modernizing equipments and machines.

HỆ THỐNG GIÁM SÁT VÀ ĐIỀU KHIỂN CÁC THÔNG SỐ KHÍ TƯỢNG THỦY VĂN SỬ DỤNG CÔNG NGHỆ GSM/GPRS/EGDE

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TÓM TẮT: Bài báo này đề cập đến việc giám sát và điều khiển thông tin dữ liệu từ xa thông qua mạng GSM,GPRS,EDGE. Mục tiêu của việc giám sát là thu thập dữ liệu khí tượng, để tổng hợp đánh giá.

Từ khóa: GPRS,GSM,EDGE,GPS ,CAN, protocol ,web

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