



GPRS/GSM BASED WATER DISTRIBUTION & CONTROL

Presented by

Ghaziabad Nagar Nigam

“At Work for Better Life, Better World For All”

Conventional Control



- Increasing population increases demand of water
- Water sources are limited and shrinking
- Situation demands highly reliable water supply
- Frequent break downs in pumping stations
- Erratic power supply
- Delayed information of break down
- Dissatisfied public
- Human errors

Conventional Control

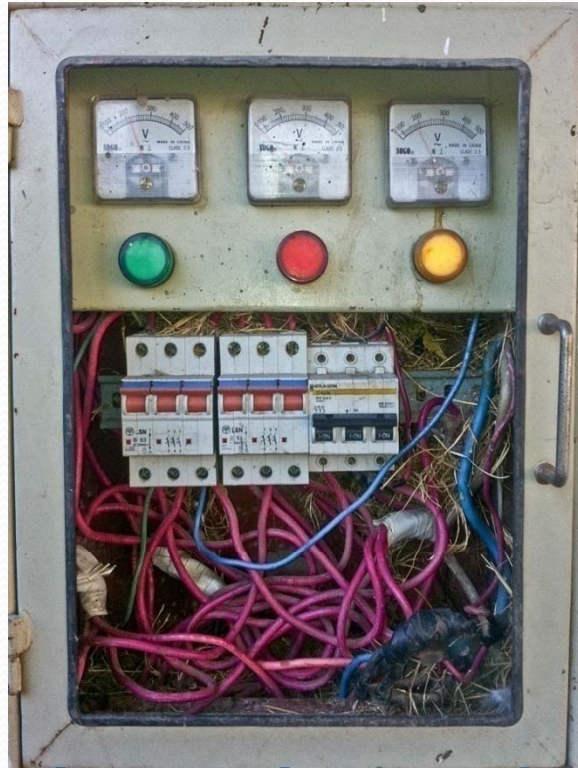
- Operator required on every site
- Manual ON/OFF of pumps
- It is possible that when tube well operators are available, there is no power supply, or else when the power supply is available, there is no operator to start the tube well pump.
- Operation outsourced leading to high financial burden
- Not much protection for the motors
- Scattered locations, no log books
- Total human dependent
- No cross check on re winded motors
- No check on minimum and maximum hours of operation
- Continuous running and over spill due to neglect.
- No repeatability in operations.



Conventional Control

- Difficulty in locating and informing about the fault.
- Bore-Wells have DOL starter, and do not have Relay protection of short circuit, overload, under-load and phase failure. This can cause equipment failure.
- Bore wells do not have facility of measuring and collecting data such as Pressure, Flow and alarms.
- No provision for Power metering and consumption report for Power

BEFORE



After Automation



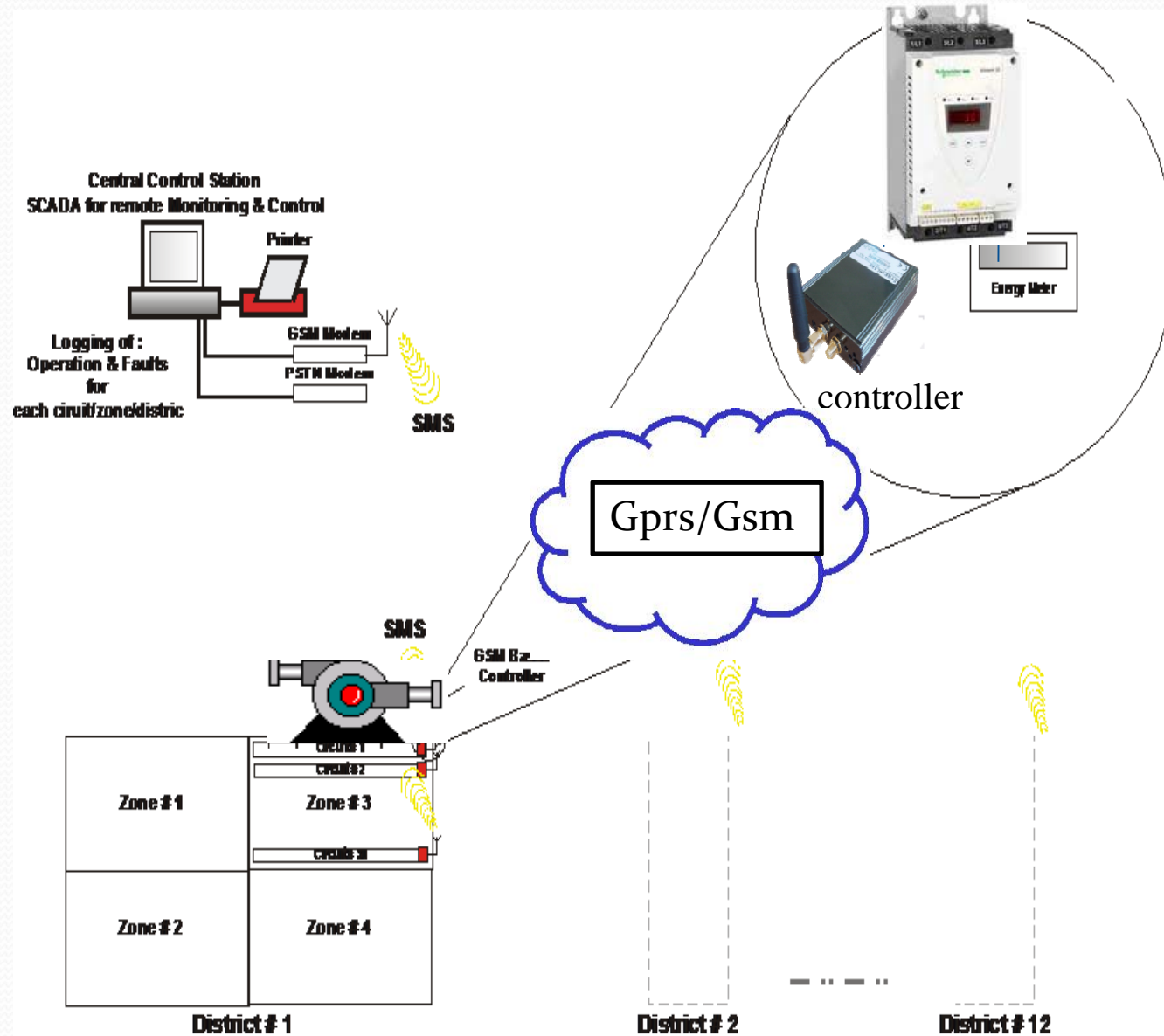
NOW



Parameter Monitoring

- Voltage of each phase
- Current in each phase
- Power Consumption
- PF
- KW each phase and total
- Total pumping Hours
- Header Pressure
- Faults
- Any Tripping
- Chlorination Pump control

System Architecture





ADVANTAGES OF PUMP AUTOMATION

- Programmable Real time operation of pump.
- Avoids unnecessary pumping, prevents over flow and dry runs.
- Ensuring addition of chlorine
- SMS to Maintenance Field staff on event of faults
- Improved Equipment life
- Improved life of Piping, avoids water hammering during start and stop
- Energy saving
- Remote energy Metering
- Report of Operating and Non operating pumps
- Power quality analysis
- Consumption Alarm
- Working Hour report
- Simplified maintenance

ADVANTAGES OF PUMP AUTOMATION

- Real time Control
- Area Specific Settings
- Automatic Report Generation for Day/Month/Year
- One time programming takes care of whole year switching requirements
- No modification required, Just installed and start operation
- Reduce manpower overheads and dependency
- Report for month, or year with one touch of button
- Increased efficiency of water supply
- Satisfied public
- Transparency in the system
- Access to the system can be given to public
- Immediate response

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स्वास्थ्य जल

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Home Alarms Zone Wise Status Reports

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City Zone

14 Pumps Off
2 Pumps On

Total Pumps : 16

Kavi Nagar Zone

20 Pumps Off
26 Pumps On

Total Pumps : 46

Mohan Nagar Zone

2 Pumps Off
3 Pumps On

Total Pumps : 5

Vijay Nagar Zone

8 Pumps Off
16 Pumps On

Total Pumps : 24

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Home

Alarms

Zone Wise Status

Reports

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ZONE	SUBZONE	LOCATION	STATION	DESCRIPTION	TIME
Vijay Nagar Zone	Vijay Nagar	Ambedker Nagar Sector-9	006	High voltage Alarm. R:208.991 Y:240.976 B:271.319	2012-06-13 14:08:44
Vijay Nagar Zone	Vijay Nagar	B-Block Pratap Vihar Sec-11	019	Upper Limit current Alarm. R:45.651 Y:44.3 B:42.416	2012-06-13 14:04:11
City Zone	Nand Graam	F-Block Pump Station	040	No Power	2012-06-13 14:03:53
Kavi Nagar Zone	Kavi Nagar	Main Tanki Pump No -1	056	Upper Limit current Alarm. R:33.606 Y:31.484 B:46.611	2012-06-13 13:52:00
City Zone	Nagar Nigam	Laaltain Factory	046	No Power	2012-06-13 13:03:58
City Zone	Nagar	Laaltain Factory	046	Pump status is manual mode	2012-06-13

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Home Alarms Zone Wise Status Reports

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Zone	Sub Zone	Location	Station	Pressure	Power Supply	Pump Status	Connection Status
City Zone	Lohia Nagar	Gandhi Park	001	0		Pump Off	Connected
City Zone	Lohia Nagar	Dinaghari Park	004	0		Pump Off	Connected
City Zone	Nagar Nigam	Taar Factory	042	0		Pump ON	Connected
City Zone	Nagar Nigam	MMG Hospital Pump St-1	043	0		Pump Off	Connected
City Zone	Nagar Nigam	Kailaa mothersaa	044	0		Pump Off	Connected
City Zone	Nagar Nigam	MMG Hospital Pump St-2	045	0		Pump Off	Connected
City Zone	Nagar Nigam	Laaltain Factory	046	0		Pump Off	Connected
City Zone	Nand Graam	C Block Near Siver Pump	038	0		Pump Off	Connected
City Zone	Nand Graam	F-Block Pump Station	040	0		Pump Off	Connected
City Zone	Nand Graam	E-Block Pump Station	041	0		Pump ON	Connected
Kavi Nagar Zone	Govindpuram	Govindpuram D Block Pump-3	092	1.97		Pump ON	Connected
Kavi Nagar Zone	Kavi Nagar	I-Block Pump No-8	051	0		Pump ON	Connected

Metering

Amp R	25 A
Amp Y	23.9 A
Amp B	24.5 A
Voltage R	228.57 V
Voltage Y	229.26 V
Voltage B	221.33 V

Pump Status

Pump Mode **Auto**

Pump is
ON



Pump Schedule

OPTION	On(hrs)	Off(hrs)	Ext(hrs)	Threshold (%)
T1	05:00	08:00	0	0
T2	11:00	15:00	0	0
T3	17:00	20:00	0	0

Schedule
Settings

Device Status

SL Voltage	24.2 V
Temperature	41°C
Io Stamp	2011-04-13 12:46:03
Vt Stamp	2011-04-13 12:46:03
Data Stamp	2011-04-13 12:46:03

Power Reading

Power	ON
KWH	4370
Offset	0.00

Pressure & Flow

Pressure

Metering

Amp R	0
Amp Y	0
Amp B	0
Voltage R	248.73 V
Voltage Y	249.16 V
Voltage B	248.56 V

Pump Status

Pump Mode **Manual**

Pump is
OFF



Pump Schedule

OPTION	On(hrs)	Off(hrs)	Ext(hrs)	Threshold (%)
T1	0	0	0	0
T2	0	0	0	0
T3	0	0	0	0

Schedule
Settings

Device Status

SL Voltage	24.4 V
Temperature	26°C
Io Stamp	2011-04-13 13:03:51
Vt Stamp	2011-04-13 13:03:51

Power Reading

Power	ON
KWH	4669
Offset	0.00

Pressure & Flow

Pressure

Metering

Amp R	0
Amp Y	0
Amp B	0
Voltage R	0
Voltage Y	0
Voltage B	0

Pump Status

Pump Mode	Manual
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Pump is
OFF



Pump Schedule

OPTION	On(hrs)	Off(hrs)	Ext(hrs)	Threshold (%)
T1	0	0	0	0
T2	0	0	0	0
T3	0	0	0	0

Schedule Settings

Device Status

SL Voltage	3.9 V
Temperature	30°C
Io Stamp	2011-04-13 13:05:06
Vt Stamp	2011-04-13 13:05:07
Data Stamp	2011-04-13 10:50:37

Power Reading

Power	OFF
KWH	11761
Offset	0.00

Pressure & Flow

Pressure

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Report Type	<input type="radio"/> Alert Report	<input type="radio"/> Pump Operation Report	<input checked="" type="radio"/> Detail Report
Date	From 2012-06-13	To	2012-06-13
Zone	ALL		
Sub Zone	ALL		
Location	ALL		
Station	ALL		

Get Report

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Alarms

Zone Wise Status

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Alert Report

For The Period
From Date: 2012-06-13 To Date 2012-06-13
Zone: City Zone SubZone: Lohia Nagar Location: Dinaghari Park Station: 004

ALARM NO.	DESCRIPTION	START TIME	END TIME	WORKING	NON WORKING
28184460	High voltage Alarm. R:260.959 Y:225.719 B:240.051	2012-06-13 05:02:51	2012-06-13 05:12:51	0	1
28184540	High voltage Alarm. R:260.695 Y:227.819 B:238.716	2012-06-13 05:12:51	2012-06-13 05:22:51	0	1
28186449	Pump running in manual mode.	2012-06-13 05:24:23	2012-06-13 06:36:59	0	1
28188101	Upper Limit current Alarm. R:48.367 Y:40.335 B:44.291	2012-06-13 05:22:51	2012-06-13 07:15:47	0	1

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Pump Operation Report

For The Period
From Date: 2012-06-13 To Date 2012-06-13
Zone: All SubZone: All Location: All Station: all

Zone	Sub Zone	Location	Station No.	Total hours	Pump Running Hours	Power failure hours	Pump Operation %	Unit Consumption
City Zone	Lohia Nagar	Dinaghari Park	004	24	9.11	0.31	37.96	234
City Zone	Lohia Nagar	Gandhi Park	001	24	8.6	4.67	35.83	4144096255
City Zone	Nagar Nigam	Kailaa mothersaa	044	24	4.44	4.85	18.5	-46997
City Zone	Nagar Nigam	Laaltain Factory	046	24	5.24	4.57	21.83	0

Detail Report

For The Period

From Date: 2012-06-13 To Date 2012-06-13

Zone: City Zone SubZone: Lohia Nagar Location: Dinaghari Park Station: 004

Data Stamp	Io Stamp	Voltage R	Voltage Y	Voltage B	Amp R	Amp Y	Amp B	Pressure	Power	Pump Mode	Status
2012-06-13 05:02:51	2012-06-13 05:02:51	0	0	0	0	0	0	0	POWER	AUTO MODE	PUMP ON
2012-06-13 05:12:51	2012-06-13 05:12:51	260.695	227.819	238.716	43.508	35.952	39.564	0	POWER	AUTO MODE	PUMP ON
2012-06-13 05:12:51	2012-06-13 05:12:51	0	0	0	0	0	0	0	POWER	AUTO MODE	PUMP ON
2012-06-13 05:22:51	2012-06-13 05:22:51	227.273	194.998	208.239	48.367	40.335	44.291	0	POWER	AUTO MODE	PUMP ON
2012-06-13 05:22:51	2012-06-13 05:24:21	0	0	0	0	0	0	0	POWER	AUTO MODE	PUMP OFF
2012-06-13 05:22:51	2012-06-13 05:24:23	0	0	0	0	0	0	0	POWER	MANUAL MODE	PUMP OFF
2012-06-13 06:36:59	2012-06-13 06:36:59	227.728	195.438	206.298	48.903	41.003	45.616	0	POWER	AUTO MODE	PUMP ON
2012-06-13 06:56:59	2012-06-13 07:01:50	231.124	200.016	209.494	48.943	41.374	45.38	0	POWER	MANUAL MODE	PUMP OFF



Thank You

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