

The schematic diagram of Substation monitoring and control system using GSM modem explains the interfacing section of each component with micro controller, GSM module and sensors.

All the hardware components are connected to the microcontroller. The crystal oscillator is connected to 7th and 9th pins. The regulated power supply is connected to the 20th pin, the 2nd, 3rd, and 6th pins are connected to the voltage sensor, temperature sensors, current sensor respectively. The load is connected to the pin no. 21 to 26, reset button for microcontroller is connected to the 1st pin, LED and relay are connected to the 13th and 15th pins respectively. The GSM modem is connected to the 17th and 18th pins, 8th and 19th pins are connected to the ground. All these components are integrated on the PCB and made as a protius hardware kit.

3.2 Working:

The voltage sensor, current sensor and temperature sensor and step up transformer are directly connected to one of the input ports of the microcontroller. The LCD display is connected in the input port of the microcontroller.

The GSM transmitting section and the load variation control are connected to the one of the output ports in the microcontroller. The monitoring PC is connected to the main station. The microcontroller at the substation monitors and captures the current, voltage and temperature values for a period interval.

The captured values are stored in the data register of microcontroller and displayed using the LCD display. The monitored voltage, current and temperature values of the transformer are transmitted using the GSM. Based on the received information, controlling operation is performed.

The rated values are given in the program that is rated voltage as 240v, rated current as 12amperes, rated temperature as 45degrees.

If these parameters exceeded then the threshold level, the mobile receives the message as transformer parameters which are greater than the fixed threshold level, then immediately the unit is shutdown so as to protect.

Microcontroller Based Substation Monitoring And Control

M Lipman



Microcontroller Based Substation Monitoring And Control:

Smart Grids for Smart Cities, Volume 2 O. V. Gnana Swathika, K. Karthikeyan, Sanjeevikumar

Padmanaban, 2023-06-06 SMART GRIDS for SMART CITIES Written and edited by a team of experts in the field this second volume in a two volume set focuses on an interdisciplinary perspective on the financial environmental and other benefits of smart grid technologies and solutions for smart cities This second volume in this groundbreaking two volume set continues the authors and editors mission to present the concepts and best practices of smart grids and how they can be utilized within the framework of a technological tapestry to create smart cities Continuing to go through the challenges and their practical solutions this second volume includes chapters on waste management e waste automotive and transportation engineering and how internet of things can be utilized within these smart technologies and many others Like its predecessor this exciting new volume covers all of these technologies including the basic concepts and the problems and solutions involved with practical applications in the real world Whether for the veteran engineer or scientist the student or a manager or other technician working in the field this volume is a must have for any library ITSPWC 2022 S. Kannadhasan, R.

Nagarajan, George Ghinea, Alagar Karthick, Basim Alhadidi, Kanagaraj Venusamy, 2022-08-04 We are delighted to introduce the proceedings of the first edition of the 2022 International Conference on Intelligent Technologies in Security and Privacy for Wireless Communication ITSPWC 2022 This conference has brought researchers developers and practitioners around the world who are leveraging and developing the Wireless Communication The theme of ITSPWC 2022 was Security and Challenges for Wireless Communication and Power Energy The technical program of ITSPWC 2022 consisted of 33 full papers including 5 invited papers in oral presentation sessions at the main conference tracks The conference tracks were Track 1 Recent Trends in IoT Track 2 Recent Trends in Smart Energy Systems and Transmission Track 3 Recent Trends in Embedded Systems and Track 4 Recent Trends in Communication Systems Aside from the high quality technical paper presentations the technical program also featured one invited talk and two technical workshops The invited talk was presented by Prof Kaushik Pal from Universidade Federal do Rio de Janeiro Brazil The ITSPWC workshop aimed to gain insights into key challenges understanding and design criteria of employing wireless technologies to develop and implement future related services and applications It was a great pleasure to work with such an excellent organizing committee team for their hard work in organizing and supporting the conference In particular the Technical Program Committee led by our Co Chairs Dr R Nagarajan Dr George Ghinea Dr Alagar Karthick Dr Bassim Alhadidi and Prof Kanagaraj Venusamy who have completed the peer review process of technical papers and made a high quality technical program We are also grateful to all the authors who submitted their papers to the ITSPWC 2022 conference and workshops We strongly believe that ITSPWC conference provides a good forum for all researcher developers and practitioners to discuss all science and technology aspects that are relevant to Security and Privacy in Wireless Communication We also expect that the future Wireless

Communication conference will be as successful and stimulating as indicated by the contributions presented in this volume
Dr S Kannadhasan *IoT and Analytics in Renewable Energy Systems (Volume 2)* O.V. Gnana Swathika,K.

Karthikeyan,Sanjeevikumar Padmanaban,2023-08-11 Smart cities emanate from a smart renewable energy aided power grid
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contribute to facilitating cities reaching those sustainability goals over time Digital technologies such as the Internet of
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smart transportation smart home smart agriculture smart manufacturing smart grid smart education smart government
smart traffic management systems Innovations in using IoT and AI in improving resilience of smart energy infrastructure
Challenges and future research directions of smart city applications ICAE 2022 Prasaja Wikanta,Alena

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