

Bapuji Educational Association (Regd.)  
***BAPUJI INSTITUTE OF ENGINEERING & TECHNOLOGY, DAVANGERE-577004***  
***Department of Electronics and Instrumentation Engineering***

### **Green Campus Initiatives**

A Green Campus is a place where environmental friendly practices and education combine to promote sustainable and eco-friendly practices in the Department. The green campus concept offers the students an opportunity to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind.

### **Initiatives taken in the Department**

- Students are motivated to take part in paper presentation on green practices.
- Students are encouraged to select the projects on waste management.
- Department is adhered to the following energy saving tips.
  1. Turn off your monitor when you leave your table.
  2. Activate power management features on your laser printer.
  3. Whenever possible, shut down rather than logging off.
  4. Turn off unnecessary lights and use daylight instead.
  5. Keep lights off in classrooms and laboratories when they are not in use.
  6. Unplug appliances not plugged into power strips

## Papers Presented by Students

### **E-WASTE MANAGEMENT AND ITS VALUE ADDITION**

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#### **ABSTRACT**

E-Waste, or electronic waste, disposal that is uncontrolled can be harmful to human health and the environment because e-waste contains toxic substances and heavy metals. However, if the waste is properly managed, it can become a business opportunity. Any country wants to ensure the safe, effective, and economically beneficial management of e-waste. Management approaches have included law enforcement and regulation and the promotion of e-waste recovery activities. Also, the challenges and opportunities posed by socio-economic structure are considered and necessary strategies are proposed for effective implementation of the e-waste management system. In this paper we mainly present the awareness and essentiality of e-waste management.

### **EFFECT OF E-WASTE ON GLOBAL WARMING AND ITS MANAGEMENT**

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#### **ABSTRACT**

With modern technology, there is increase in e-waste generation. E-Waste, or electronic waste, disposal that is uncontrolled can be harmful to human health and the environment, because e-waste contains toxic substances and heavy metals. However, if the waste is properly managed, it can become a business opportunity. Any country wants to ensure the safe, effective, and economically beneficial management of e-waste. Management approaches have included law enforcement and regulation and the promotion of e-waste recovery activities. Also, the challenges and opportunities posed by socio-economic structure are considered and necessary strategies are proposed for effective implementation of the e-waste management system. In this paper we mainly present the effect of e-waste on global warming and the essentiality of e-waste management.

# **Intelligent Street Lighting using a ZigBee Network**

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## **ABSTRACT**

The proposed intelligent street lighting system focuses on development of intelligent street lighting system. The system optimizes the management and increases the efficiency of street light systems. It uses a combination of sensors to control the desired system parameters, the information is transferred using ZigBee transmitter and receiver and is sent to Base station for analysis and to take appropriate action in case of failure. The system also takes automatic decision for (ON-OFF) by considering movement of vehicle or a pedestrian on the street.

# **IoT Based Waste Bin Level Management System**

**Raghavendra Narsapur<sup>1</sup>, Tej Prakash Chowdary<sup>1</sup>, Nitish Kumar<sup>1</sup>, Mahantesh<sup>1</sup>, Amruth<sup>1</sup>, Manjunath K G<sup>2</sup>**

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## **ABSTRACT**

Waste management is one of the major problem that has to be solved in the case of developed or developing country. The key issue in the waste management is that the garbage bin placed in the public places gets overflowed. To avoid pollution and maintain public cleanliness and health the status of the dust bin is needed to be known well in advance. The main theme of the work is to develop a smart intelligent garbage alert system for a proper garbage management. This paper proposes a smart alert system for garbage clearance by giving an alert signal to the centralized station through IoT for instant cleaning of dustbin based on the level of garbage filling.

## Projects carried out by Students

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### **SMART GARBAGE MONITORING SYSTEM USING IOT**



An efficient method to monitor the waste has been designed using sensors and the output will be displayed on the monitoring screen of municipality office. Ultrasonic sensor detects the level of the garbage inside the bin and the weight sensor is mounted at the bottom of dust bin, continuously monitors weight of garbage in to dustbin. On the receiver side continuously monitors garbage in the dustbin. If the garbage level and weight reaches the set level, the information and location will be sent to municipal office using IoT. Municipality takes many measures to maintain the cleanliness of the city. This prevents lumping of garbage in the roadside dustbin which ends up giving foul smell and illness to people.

The Smart Garbage Monitoring System sends a smart alert system for garbage clearance by giving an alert signal to municipal web server for instant cleaning of dustbin based on the level of garbage filling.

Simple in design, low cost, maintains healthy surroundings.

This project was sponsored by KSCST, Bengaluru.

## ***Domestic Hybrid Power Generator***



Domestic hybrid power generation is all about the generation of power to meet the domestic power requirements. The solar panel converts the light energy into electric energy whereas the wind turbine converts the mechanical energy into electrical energy. The idea of hybrid power generation is because it involves two power generators, one is solar panel and the other is wind turbine , the solar panel generates power during the day time and the wind turbine generates power both at morning and at night i.e. even during the absence of sunlight which is advantageous for power generation always.

The cost varies depending upon the power requirements. One more advantage of this setup is that it is eco-friendly and the natural resources like wind and sun-light are available in plenty.

This setup can help to eradicate the electricity crisis; the only important requirement is the capital investment.

This was sponsored by KSCST, Bengaluru.

## “Automated Sanitary Management System”

Old and aging portions of our municipal waste collection units, the sanitary sewers have seen little improvement since their inception. It comes with very high initial investment and is virtually impossible to completely replace.

Current methods of clearing blockages in the drain system involve two methods: Manually lowering a person in to the drains through the manhole to retrieve the blocking material; or Mobile Septic Tank that comes equipped with a vacuum pump. Toxic gas buildup at the certain sites can cause leakage or sometimes even explosions if the appropriate conditions are met.

### **OBJECTIVES.**

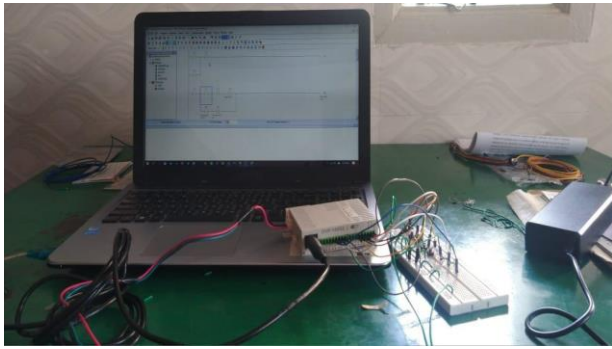
1. To bring about a modern solution to the aging system by providing connected sensors to monitor flow and pressure parameters in the sanitary drains.
2. Further, this project aims to respond to blockages at the drain level before it can affect the end user.
3. Incorporate gas venting in case to ensure user safety.

### **METHODOLOGY.**

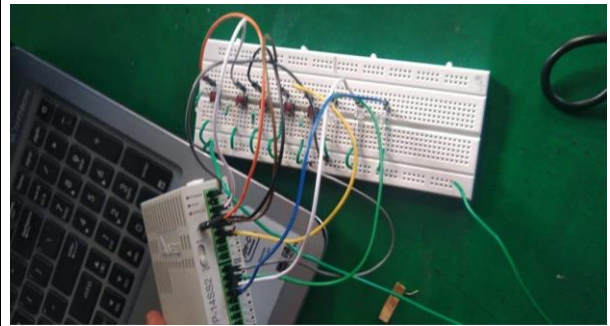
The PLC DVP-14SS2 is an 8-input, 6-output computer capable of supporting PID loops with automatic tuning for process control applications. The transistor outputs allow high speed pulse generation for servo or stepper motor motion control applications. It features high speed counters, a flexible serial port, real-time monitoring and an expansion bus that allows matching modules to be mounted on the right side of the PLC without external wiring.

The gas exhauster system forms one loop with a gas detector to detect types of gas in conduit coupled with a pressure sensor switch to monitor for dangerous levels before opening the manhole cover. If either of these conditions are not met to satisfactory levels, an alarm is used to warn against human access to the sanitary lines during dangerous conditions and an exhauster valve is actuated allowing controlled outflow. Once safe conditions are reinstated, the alarms are reset.

Blockages, obstructions and overflows are monitored using level and flow sensors mounted on the walls of the sewage line. A small overhead water tank is used to overcome obstructions to the flow. Another control loop is defined with the flow and level sensors for measurement and an actuated valve for corrective action. The water tank itself forms a small contained loop with a level sensor to ensure it is proactively filled and ready for deployment.



**Fig 1:** Picture of complete model interfaced with Computer for downloading program onto PLC.



**Fig 3:** Picture of Delta PLC 14SS2 with interfaced switches and indicating LEDs