

# SYNOPSIS

1.	<b>Title of the Project</b>	ENERGY MONITORING SMART SOCKET Project Reference No.: 46S_BE_0443										
2.	<b>College and Department</b>	Sahyadri College of Engineering & Management, Mangalore-575007 (Computer Science & Engineering)										
3.	<b>Name of the Students and Guide</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Apoorva N</td> <td style="width: 50%;">apoorvan.cs19@sahyadri.edu.in</td> </tr> <tr> <td>Rahul D</td> <td>rahul.dp@yahoo.com</td> </tr> <tr> <td>Charitha S</td> <td>charithas.cs19@sahyadri.edu.in</td> </tr> <tr> <td>Adithya</td> <td>adithyac.cs19@sahyadri.edu.in</td> </tr> <tr> <td>Ms. Ashwini C S (Guide)</td> <td>ashwini.cs@sahyadri.edu.in</td> </tr> </table>	Apoorva N	apoorvan.cs19@sahyadri.edu.in	Rahul D	rahul.dp@yahoo.com	Charitha S	charithas.cs19@sahyadri.edu.in	Adithya	adithyac.cs19@sahyadri.edu.in	Ms. Ashwini C S (Guide)	ashwini.cs@sahyadri.edu.in
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4.	<b>Keywords</b>	Energy, IOT, Smart Socket, automation.										
5.	<b>Introduction</b>	<p>In the era of automation, devices are becoming smarter and more intelligent. The Internet of things connect to devices all around the world, hence, it's possible to control and monitor smart devices to collect and send data or commands to perform certain tasks. As a challenge we have also observed in many households or hotels, improper energy management results in high power consumption. Also, when there is a mismatch between power consumption and electric bill cost, it is challenging to detect an accurate monthly bill and the device which consumes excess power. Hence using IOT, "Energy Monitoring Smart Socket" is designed to monitor the power consumption, control/automate the devices connected to it and convert the non-smart device into smart by a simple tap on your phone.</p>										
6.	<b>Objectives</b>	<ul style="list-style-type: none"> <li>● The Smart socket can operate connected devices remotely.</li> <li>● Smart Socket helps in better energy management in households.</li> <li>● Energy Monitoring Smart Socket helps in tracking energy usage for individual Equipment.</li> <li>● It eases the daily life of old people by enabling the automation feature in it so that it avoids them to physically turn on/off devices.</li> <li>● It alerts the user in case of abnormal power consumption.</li> <li>● For people who are unable to afford for smart AC, they can convert their non-smart AC into Smart with a low cost, multifunctionality Smart socket</li> </ul>										

<p>7. <b>Methodology</b></p>	<p>The power supply from the socket is fed as an input to the smart socket.</p> <p>The AC is converted to DC and is used to power up the microcontroller and other sensors. The microcontroller collects data from voltage, current, and temperature sensors, and performs computations. The algorithm then measures the power consumption from the device. The relay module is used to Turn ON/ OFF the device, which is controlled by the microcontroller.</p>	<pre> graph LR     PM[POWER MAINS(230V AC)] --&gt; ADC[AC TO DC]     ADC --&gt; MC[MICROCONTROLLER]     MC --&gt; RELAY[RELAY]     RELAY --&gt; OUTPUT[OUTPUT]     TS[TEMPERATURE SENSOR] --&gt; MC     RTL[RTL] --&gt; MC     VS[VOLTAGE SENSOR] --&gt; MC     CS[CURRENT SENSOR] --&gt; MC     PM --&gt; VS     VS --&gt; CS     CS --&gt; RELAY   </pre>
<p>8. <b>Results and Conclusions</b></p>	<p>Developing an addon for the existing power socket to make the non-smart device smart, with multi functionality to monitor and control the device through user friendly mobile application.</p>	<p>Developing an addon for the existing power socket to make the non-smart device smart, with multi functionality to monitor and control the device through user friendly mobile application.</p>
<p>9. <b>Scope for Future Work</b></p>	<ul style="list-style-type: none"> <li>• Designing an outer case for a socket to get the prototype to product level.</li> <li>• Detecting Faulty devices accurately by using Machine Learning and Data Science and sending a signal to the users</li> </ul>	<ul style="list-style-type: none"> <li>• Designing an outer case for a socket to get the prototype to product level.</li> <li>• Detecting Faulty devices accurately by using Machine Learning and Data Science and sending a signal to the users</li> </ul>