PROJECT PROPOSAL

on

CONTROLLING ELECTRONICS OVER THE INTERNET THROUGH TUNNELLING.

Submitted
To

TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
(Autonomous body of Govt.of Tamilnadu)

By

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TNSCST STUDENT PROJECT PROPOSAL

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1. **Name of the Guide** : **Mr.k.Sundar**

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Project Title : Controlling electronics over internet through tunnelling.

2. **Sector in which your Project Proposal is to be considered** : Engineering & Technology

3. **Project Details** : Given Below

I. INTRODUCTION

Automation is a field of engineering where engineers build systems to automate recurring tasks. After the invention of electricity, people have extended automation to a great new peak. Every electrical instrument introduced in the market is a form of automation.
Now in this era, after the invention of internet, data sharing, access and manipulation have increased enormously.

The next generation of this progress is the Internet of Things(IOT) concept, in which we control hardware electrical and electronic devices over the internet. Not only that, the electronic devices also provide data about their status. This can be used for massive coordination of devices, ultimately leading to heavy automation of tasks.

But one disadvantage of Iot is that they require an internet driver to be online always.
Embedding a driver for every hardware device is a costlier task.

In this project, we propose an alternate solution called as tunnelling, to eliminate the need for hardware internet driver connected to every device.With our solution, electronics can be controlled over the internet from anywhere.

This solution can be readily installed in commercial places like schools, colleges, factories and many other places, so that the workers can control their hardware devices and heavy machinery from remote places and monitor their workings.

Our product can also be used in school/college laboratories such that the main control is in one single place. If someone has forgot to turn of a computer, with our product, the staff can turn it off even from his/her mobile devices.

All it takes is a single server that can be controlled over the internet rather than several internet drivers connected at the same time.Thus it becomes an extremely efficient and cost effective alternative.

II. RELATED WORK

Amazon web services, google cloud platform, microsoft azure and every major cloud service provider have a solution for IoT connectivity.

A service called as losant provides remote control to IoT devices through their web platform.They require a Raspberry pi (similar to arduino, but with a built in internet connection). By providing Id to every connected raspberry pi, they provide access to all the devices a user has.

Hakunamatata- an Indian company that provides online connectivity to hardware devices that have internet drivers associated with them.

III. PROPOSED WORK

The proposal uses an arduino microcontroller and a relay to connect with an electronic device.The arduino is connected to a server that has a node.js application that waits for commands from the client.

When the client sends a request to turn off or turn on the electrical appliance, the request is then transferred to the node.js server which is running on the local machine via local tunnelling.This localtunnel makes the localhost of the machine to be accessible all over the world, as long as the tunnel is enabled.

This request is then received by the node.js server and then transferred to the respective arduino device, which in turn controls the hardware device.

ARDUINO BOARD:

Arduino is an open source computer hardware and software company, project, and user community that design and manufactures single-board microcontroller kits for building digital IoT applications.

Fig 1.Arduino Uno

RELAY SWITCH:

relay is an switch that allows 240 volts to pass through only when the switch is enabled through the arduino.

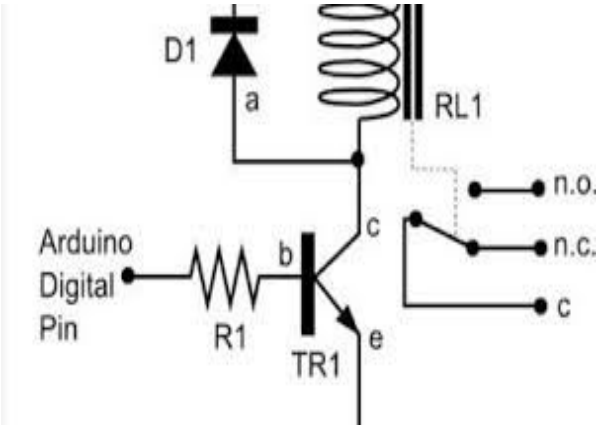

Fig 2.Relay

SERVER:

The server side is developed using node.js as it provides convenient methods for interfacing with arduino.

IV. SYSTEM DESIGN

The system design is given in the Fig 3. In which the workflow of the project is mentioned clearly.

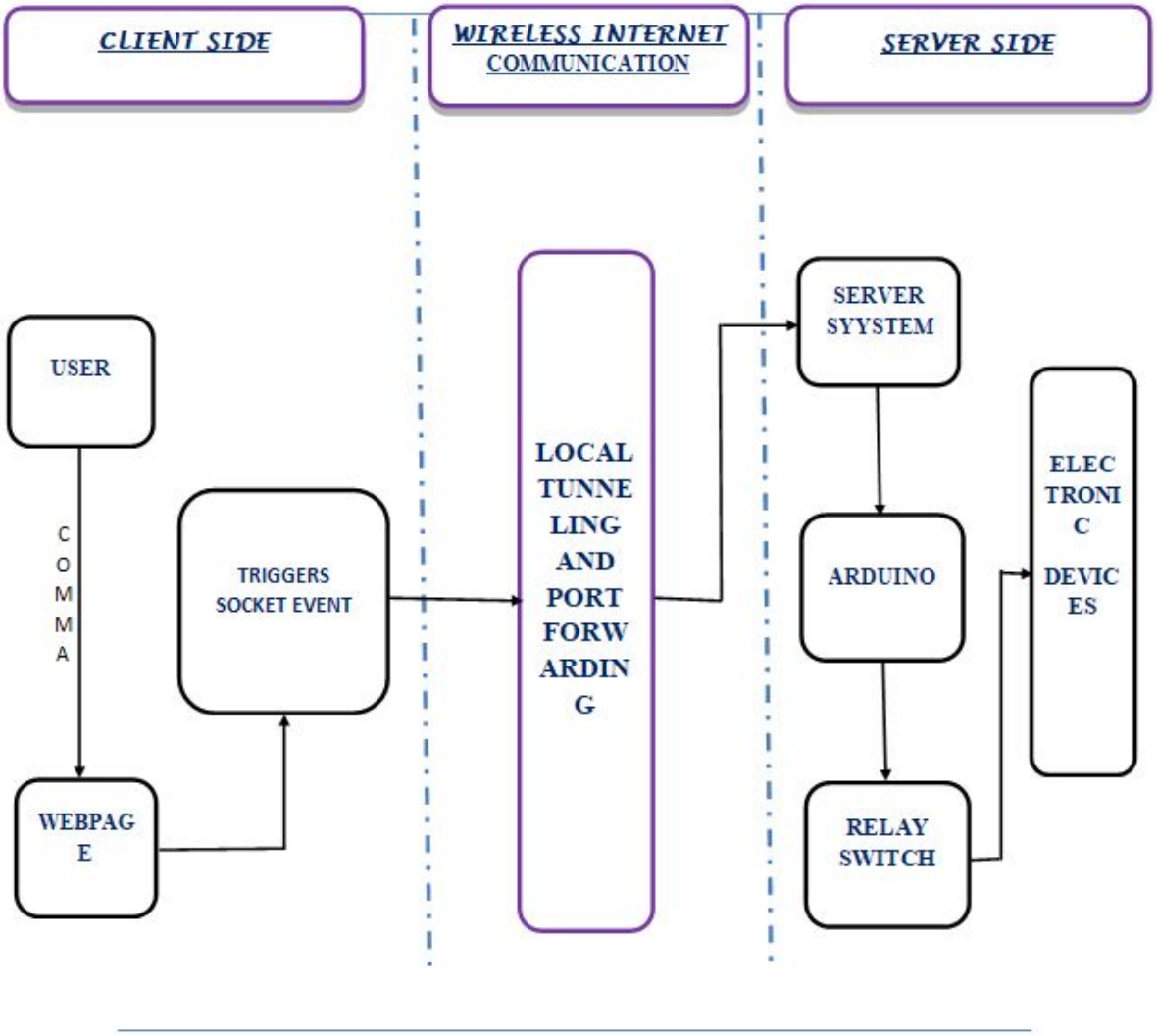

Fig 2. System Architecture

V. CONCLUSION

This system can be heavily utilized in commercial areas to enable automation in controlling and monitoring of hardware devices through the internet from anywhere across the world. This is also heavily applicable in public places where the control for any electric appliance can be in remote areas.

VI. WORK PLAN

The expected duration required to complete each activity is given in table below.

SI. No.	ACTIVITY	DURATION
1.	**Literature Review and Related Work**	**1 Weeks**
2.	**Modules Design**	**2 Week**
3.	**Modules Development**	**2 Weeks**
4.	**Modules Implementation**	**2 - 4 Weeks**
5.	**Project Testing**	**1 Weeks**
6.	**Project Delivery and Maintenance**	**1 Week**

Total Duration: **9-12 weeks**

VII. BUDGET

The expected budget for each process is presented in table below.

The electronic requirements price is developed on the assumption of providing internet electrical control to an average house.

s.no	module	price
1.	electronic requirements	5000
2.	module design	1000
3.	project development	2000
4.	project testing	1000
5.	maintenance & spare creation	500

The total expected cost of the study is **Rs.9500/-** (Rupees Nine thousands five hundred only).

4. Has a similar project been carried out in your college / elsewhere? : No

If so furnish details of the previous project and highlight the improvements suggested in the present one

CERTIFICATE

This is to certify that **Mr.S.Laxman vijay, Mr.S.Durai Raj, Mr.S.Sarveswaran and Sadagopan** are bonafide students of U.G. Engineering / CSE of our college and it is also certified that two copies of utilization certificate and final report along with seminar paper will be sent to the Council after completion of the project by the end of April 2019.

Signature of the Guide	Signature of the HOD	Signature of the Principal/ Head of the Institution