TABLE OF CONTENTS

1. Introduction
2. Attention Lights
3. Smart Windows
4. Smart Desk
5. LPG leakage detection
6. Traffic signal lights
7. Technologies used

Introduction

The Internet of Things (IoT) is the next billion dollar industry. It is really powerful. A thing, in the Internet of Things, can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low or any other natural or man-made object that can be assigned an IP address and provided with the ability to transfer data over a network.

In this abstract we put forward simple IoT applications which could be really helpful in our everyday life. These IoT projects use WiFi and NFC technologies. These devices are connected to the internet and uses TCP/IP protocol.

Some of our simple ideas include:

1. Attention Lights
2. Smart Windows
3. Smart Desk using NFC
4. Air conditioner control
5. LPG leakage detection
6. Traffic Signal lights

These ideas are grouped into sub ideas. The Attention lights is basically a simple idea in which an LED strip or an ambient lighting responds to events recorded by a smartphone or other Things which are connected to the internet.

The Smart ideas are utility based applications. These ideas transform our everyday “dumb” Things into “smart” Things. The Safety and Security ideas focus on daily safety and security.

Most of our ideas are paired with a mobile application. This app and few of our ideas are already in development.

Attention Lights

It would be cool to have your room lit up in a particular color when you get a phone notification right? That’s what is “Attention Lights”. An alarm notification in your phone lights up your room in red, a WhatsApp notification in green or a Facebook notification in blue.

It not only responds to your phone notification but also will talk to other Things. It can respond to a door bell or automatically turn on when it’s dark. It’s all up to the user to program it. It is more than a gimmick, and could also aid hearing impaired people.

We plan to implement this using RGB LED strips.

Smart Windows

Wouldn’t it be awesome to see windows closing and opening automatically?

Though this technology is already in existence, we planned on spicing it up a bit. Turning our everyday window into a Thing, we can control these windows using our smartphone app. This window can also respond to rain. It uses a rain sensor and automatically closes when rains. It can also be programmed to close at a particular time and open at a particular time.

In a larger scale, if implemented in a classroom, the classroom windows can automatically close at a particular time using a control application or can be programmed to shut when its dark using light sensors.

Smart Desk

We plan on turning our boring everyday desk into a smart thing. Our desk has a table fan in its proximity, a table lamp, a phone charger and a monitor. We tend to leave them switched on when we leave the desk for a short break. It’s again a waste of resources. Wonder if they automatically switch off when you leave the desk (with the phone) and they switch on when you place your smartphone on your desk. By using NFC, we plan to realize this project. NFC stickers are placed on the desk and when a phone is placed on it, the phone turns on the Things that the users desire.

Air conditioner control

This technology is already in existence but not to an extent where it talks to other Things. By hacking an Air conditioner remote control, we can emulate it. The user can program the module to turn off the A/C and turn on the fan. Or turn off the lights and turn on the A/C. The A/C can also be turned on from a remote location over the internet. The A/C could also be programmed to change the operating temperature at a particular time.

LPG LEAKAGE DETECTION

The LPG cylinder can be turned into an internet of thing! Using an LPG sensor, the user can be alerted of a gas leakage on their Attention Lights and their Smartphone. If the user is outside, he can be notified about this through his smartphone.

Technology

* We are planning to connect all the things over the internet using TCP/IP protocol.
* The microcontroller of our choice is ATMEGA328p using Arduino language.
* WiFi modules used: ESP8266 ESP-01 or NODEMCU for certain applications.
* An android application will also be developed by us.
* Sensors: Gas sensor, rain sensor, light sensor (LDR) etc.
* NFC- Near Field Communication.