

IOT LAB AUTOMATION

¹Adeeb Qazi , ²Sanjay Rao, ³ M.S.Khatib , ⁴Farheena Shaikh,

¹ B.E 8th SEM , ² B.E 8th SEM ,³ Associate Professor, ⁴ Assistant Professor,

¹²³⁴ Department of Computer Science and Engineering , A.C.E.T , Sadar , Nagpur ,India

ABSTRACT: Technology is a never-ending process. To be able to enterprise a product using the current technology that will be helpful to the lives of others is a huge input to the public. This project offerings the strategy and application of a short fee but however elastic and sheltered cell phone-based household mechanisation system. The strategy is based on a impartial Arduino BT board and the home utilizations are connected to the input/ output ports of this panel via relays. The message among the cell handset and the Arduino BT board is wireless. This project is planned to be low rate and accessible allowing variation of devices to be precise with lowest variations to its core. PIN guard is being used to only allow permitted users from opening the utilizations at home.

In this project we have offered a Lab Automation System (LAS) using Arduino BT board that employs the integration of cloud interacting, wireless statement, which affords the user with isolated control of beams, fans, and applications within their lab and loading the figures in the cloud. The project will inevitably change on the basis of sensors' figures. This project is planned with little cost and extended in lab to switch diversity of devices.

INTRODUCTION

I. In today's modern world of computers where all the things are going computerized and automated. From machinery to simple paperwork every process and organization has to do something with a computers. Keeping that in our awareness we are scheming our project 'Lab Automation System' that will be a small working model of an automated or mobile controlled system for laboratory system.

II. It will demonstrate how we can control appliances in the lab and controlling all the processes through a mobile. Labs will become more and more self-controlled and automated due to the relief it provides, especially when active in a private lab. The lab computerisation system is a means that consent users to control electric appliances. Many existing, well-recognized lab automation systems are centred on underwired announcement.

ADVANTAGES

- I. • This little-price system with lowest requirements takes care of both home security as well as home mechanization
- II. • This household safety system does not use any smartphone claim or any type of user boundary in its place uses digits from the keypad on the handset, the system is stage independent and hence can be retrieved from a extensive variety of phones with different operating systems.
- III. • To operate home departure system the user need not have data connection aided in his phone. The system runs fine with the launchpad correlated to Wi-Fi at home/office.
- IV. • The noncompulsory smart phone application takes care of the statistic that the user may also wish to govern his home appliances deprived of sensors being triggered.
- V. • To operate home security system the user necessity not have data connection enabled in his phone. The system rounds on with the launchpad coupled to Wi-Fi at home.

EXISTING SYSTEM

Four examples of gate latch crops that are ready on the market or shortly to be released are: Lockitron[1] , Unikey Kevo, August Cool Latch. This segment will familiarise the functionalities and structures of separately of these harvests.

1: Lockitron

Lockitron is the invention which is most alike to our plan and is previously on the market [1] . The first repetition of Lockitron changed the deadbolt, but the fresher iteration which is shown in figure 1, is placed on the gate lock from the inside, thus agreeing the use of the invention even for boarders since it can be easily unconcerned and fixed away.

An problem would be that around are many dissimilar variations of door locks, therefore the user can photocopy out a stencil to check if Lockitron would fit on the door lock, or send a image to Apigy, which they would appraise. Its sets can preceding up to one year, and can send a warning when they are consecutively low [2].

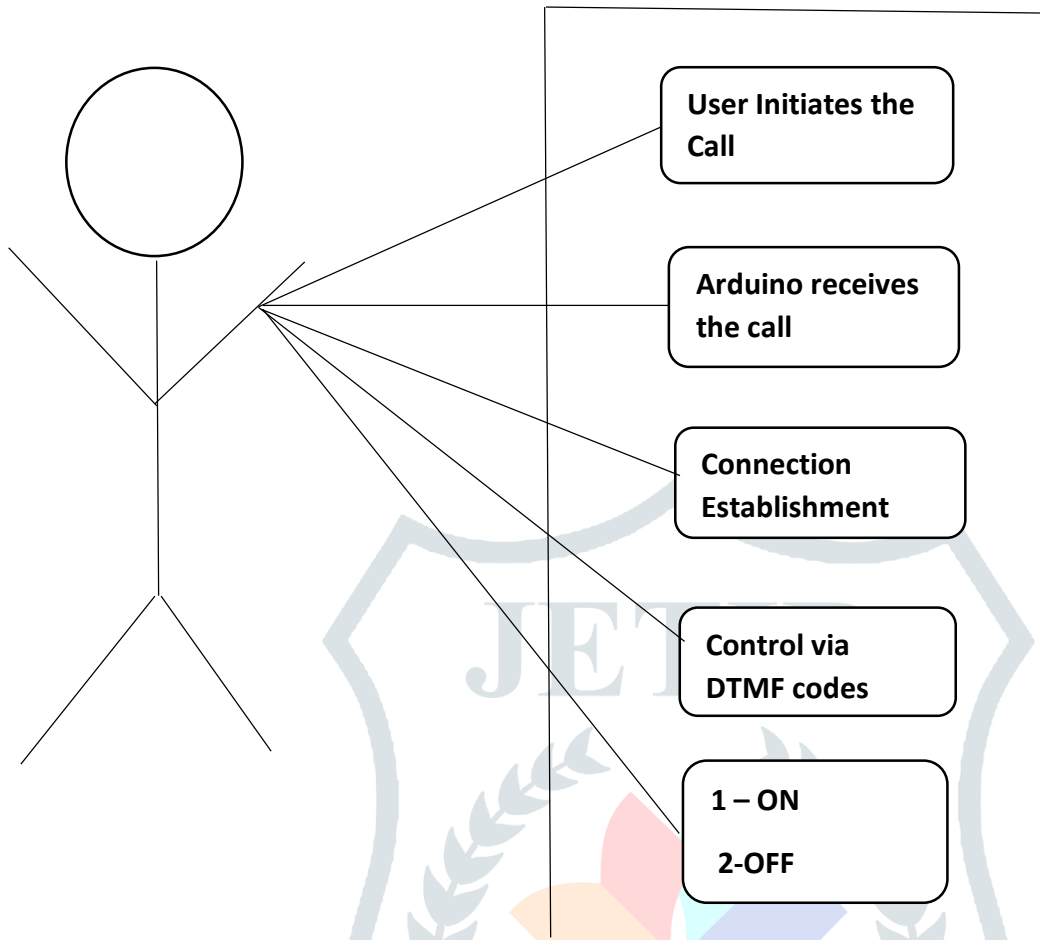
internet while using the app, by by means of Bluetooth 4.0 while walking up to the door, or through NFC(Near Field Communication). Bluetooth 4.0 is only existing for some currently released Android

2: The UniKey Kevo

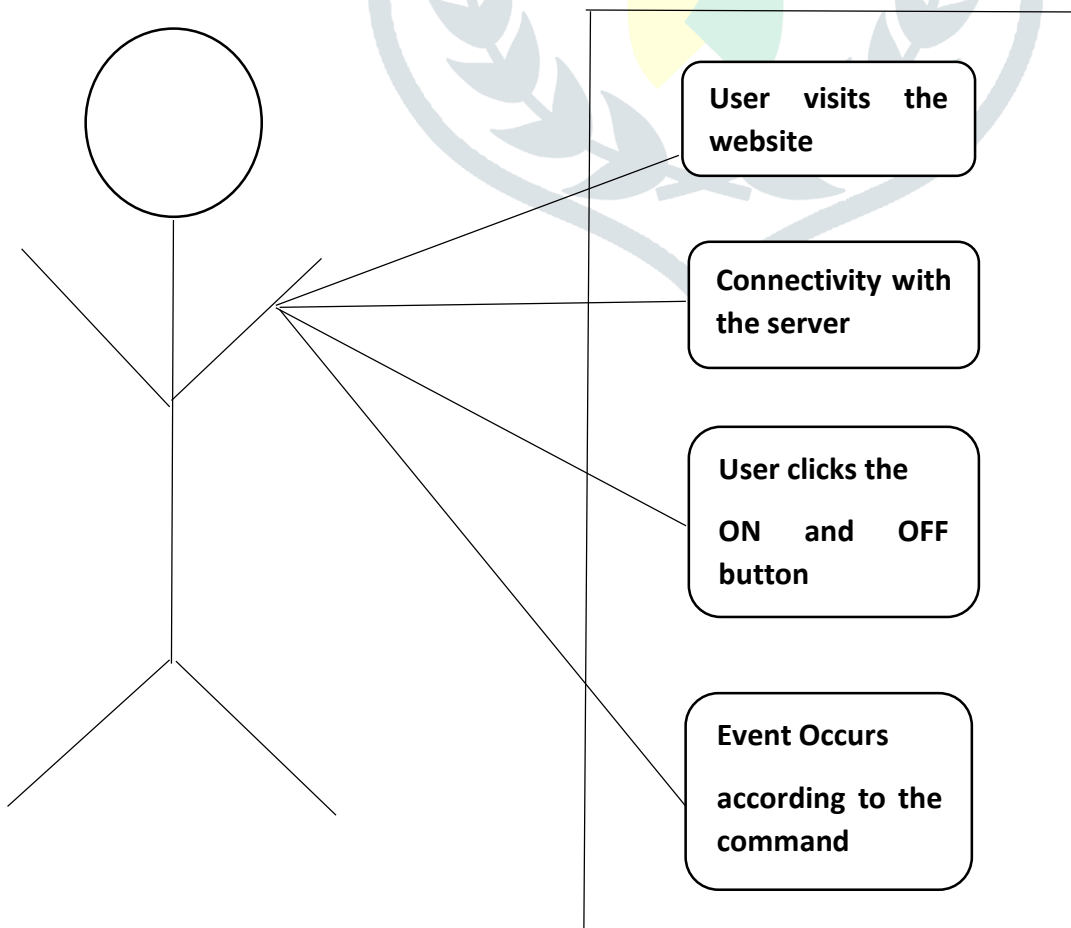
The Kevo application uses Location Services and Bluetooth low-slung energy to detect when the user is near the door and a touch on the lock will lock or unlock it[4]. The lock which is shown in figure 2, has a feature to detect if the user is inside or outside of the door to avoid unauthorized access. The control application is only offered for iPhone 4S and iPhone 5. UniKey also provides a Kevo Fob for users without a like-minded phone. A Kevo Fob or key fob is a small security hardware device with built in validation mechanisms[3]. With the request the user can succeed locks, key fobs; and send, restrict and remove electronic keys. The electric keys can be given to personal, groups or guests.

It customs 4 AA series and has a appealed mobile-life of one time. The lock has indicators for low battery levels and in the case the batteries are not traded in time, a standard key has to be used. The lock is a deadbolt standby and is designed to be easily installed.

UML DIAGRAMS



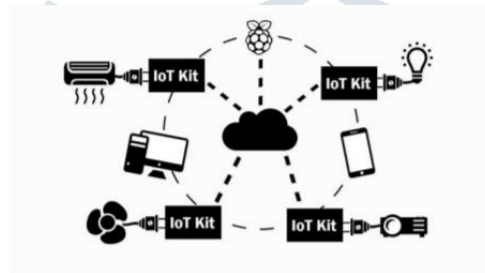
Usecase Diagram of GSM Module



Usecase Diagram of GPRS Module

PROPOSED SYSTEM

The proposed effort aims at devising a smart laboratory that facilitates remote monitoring and control of the lab devices using mobile application. In this scheme, a piece of lab use is interfaced with an information gaining unit that is an IoT thing with an exclusive IP address ensuing in a web wireless system of policies. The data attainment System on Chip (SoC) unit collects energy intake data from each trick of smart lab and transmits the facts to a centralized server for further dispensation and analysis [2]. All appliances in the workshop use MQTT (Message Queuing Telemetry Transport).



SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

1.	Arduino Kit
2.	Wiring
3.	External Power Supply

SOFTWARE REQUIREMENTS

1.	Arduino IDE
2.	MySQL Database
3.	Android Studio above 5.0

REFERENCES

- 1] Sirsath N. S, Dhole P. S, Mohire N. P, Naik S. C & Ratnaparkhi N.S Department of Computer Engineering, 44, Vidyanagari, Parvati, Pune-411009, India University of Pune, "LAB Automation using Cloud Network and Mobile Devices".
- 2] Deepali Javale, Mohd. Mohsin, Shreerang Nandanwar "LAB Automation and Security Scheme Using Android ADK" in World-wide Journal of Electronics Communication and Computer Technology (IJECCCT) Volume 3 Issue 2 (March 2013).
- 3] Charith Perera, Student Member, IEEE, Arkady Zaslavsky, Member, IEEE, Peter Christen and Dimitrios Georgakopoulos, Member, IEEE "Context Aware Computing for The Internet of Things: A Survey". IEEE COMMUNICATIONS SURVEYS & TUTORIAL.
- 4] Charith Perera_y, Arkady Zaslavskyy, Peter Christen_ and Dimitrios Georgakopoulosy Research School of Computer Science, The Australian National University, Canberra, ACT 0200, Australia yCSIRO ICT Center, Canberra, ACT 2601, Australia " CA4IOT: Context Awareness for Internet of Things".

