

SYNTHESIS AND EVALUATION OF HYDROXYL BENZOPHENONE DERIVED METAL COMPLEXES AS ANTIDIABETIC AGENTS

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ABSTRACT:

The M(II) complexes derived from hydroxyl benzophenone and o-phenylenediamine have been synthesised. All the compounds were characterized by elemental analysis, ¹H NMR, FT-IR, UV-visible, Mass spectroscopy, molar conductometry, magnetic susceptibility and thermal analysis study. The FT-IR spectral study reveals that the ligand behaves as a dibasic tetradentate ligand with N₂O₂ donor atoms sequence towards central metal ion. The physico-chemical study reveals octahedral geometry for the complexes. The results show the formation of 2:1(ligand: metal chloride) complexes with amine and screened for anti-diabetic activity.

INTRODUCTION:

During the past two decades, considerable attention has been paid to the chemistry of metal complexes containing nitrogen and other donor¹. The tetradentate Schiff base complexes are well known to form stable complexes, where coordination takes place through the N₂O₂ donor set²⁻⁴. N, O- bidentate and N₂O₂ - tetradentate ligands (soft and hard donor) possess many, advantages such as facile approach, relative tolerance, readily adjusted

ancillary ligands, and tunable steric and electronic coordination environments on the metal center⁵. This may be attributed to their potential application in many fields such as oxidation catalysis⁶ and electrochemistry⁷. Transition metals are involved in many biological processes which are essential to life process. The metals can coordinate with O- or N-terminals from proteins in a variety of models and play a crucial role in the conformation and function of biological

macromolecules^{8, 9}. This paper reports the synthesis, characterization, thermal and biological studies of metal(II) complexes derived from the reaction of hydroxyl benzophenone and o-phenylenediamine in alcohol. Diabetes mellitus (DM), which develops many secondary complications such as atherosclerosis, microangiopathy, renal dysfunction and failure, cardiac abnormality, diabetes retinopathy and ocular disorders, is classified as either insulin-dependent type 1 or non-insulin-dependent type 2, according to the definition of WHO. Although several types of insulin preparations for type 1 DM and those of synthetic drugs for type 2 DM have been developed and clinically used, they have several problems such as physical and mental pain due to daily insulin injections and defects involving side effects, respectively. Over thousands of years, people have produced many types of inorganic compounds, and the modern concept of chemotherapy was achieved by Ehrlich, who used an arsenic-containing compound to treat syphilis. In the 21st century, a new class of pharmaceuticals should be introduced. For this reason,

metallopharmaceutical compounds containing vanadium and zinc ions are expected to treat both types of DM, by making effective use of unique characteristics of the metals. Focusing on the preparations and coordination structures of the complexes and in vitro and in vivo evaluations as well as the possible mechanism. Since then, many metallopharmaceutics have been developed worldwide. This review will be helpful to researchers who are interested in the current states of anti-diabetic metal complexes.

CHEMISTRY

Materials and Methods:

All the chemicals used in the preparation of Schiff base and its metal complexes were of AR grade. A Perkin-Elmer CHN analyzer (model 2400) was used for C, H and N analyses.. The electronic absorption spectra of the complexes were recorded as dilute solutions on a Shimadzu 160A/240A UV-visible spectrophotometer. The ¹H NMR spectra were recorded using Bruker DRX 400 spectrometer at 400 MHz with TMS as the internal standard. Mass spectra were obtained with a VG70-70H spectrophotometer. The

infrared spectra of the solid samples were recorded in the range $4000-500\text{ cm}^{-1}$ on a Perkin-Elmer 597/1650 spectrophotometer using KBr pellets.

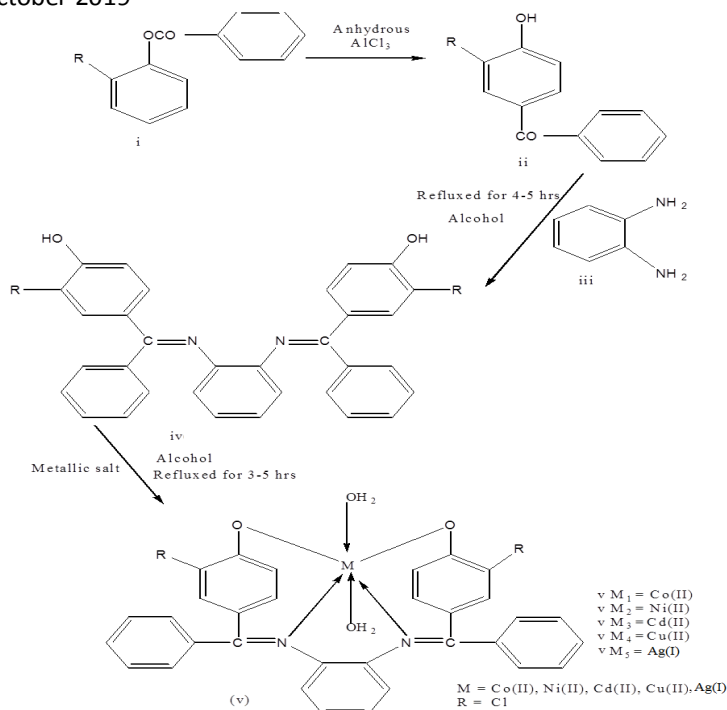
METHODOLOGY:

A mixture of o-phenylenediamine (**iii**) and substituted hydroxybenzophenone (**ii**) in 1:2 molar ratio in methanol was refluxed with constant stirring. This condensation reaction was carried by using 3 drops of acetic acid for 5 hours. The formed water was removed from the reaction mixture by using sodium sulphate as dehydrating agent. After completion of the reaction, the mixture was reduced to half of its original volume and kept aside at room

temperature. The white precipitate (**iv**) was formed on slow evaporation.

iv: Yield 85%; M.p. 167°C ; IR (Nujol): $(\text{C}=\text{N})$ 1665 , $(\text{O}-\text{H})$ 3505 cm^{-1} , $^1\text{H NMR}$ (DMSO): δ 6.9-8.1 (m, 20H, Ar-H), 10.7 (bs, 2H, -OH phenolic). MS: m/z 536 Anal. Calcd. for $\text{C}_{32}\text{H}_{22}\text{Cl}_2\text{N}_2\text{O}_2$: C, 71.51; H, 4.13; N, 5.21. Found: C, 71.63; H, 4.22; N, 5.62%.

A solution of ligand (**iv**) and cobalt(II) chloride hexa hydrate in 1:1 molar ratio in ethanol was refluxed for 6 hours. The resulting solution was reduced to half of its volume and kept aside. On standing, the obtained solid product was filtered off and washed with water and ethanol.

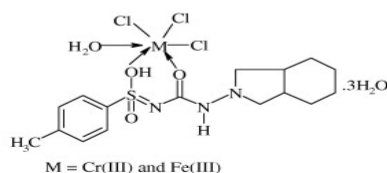
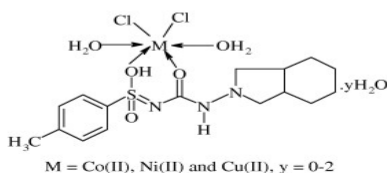
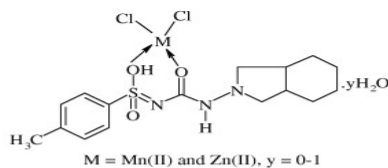
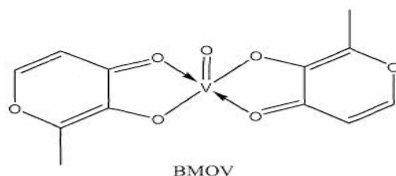


RESULTS AND DISCUSSION

All the complexes $\text{vM}_1\text{-M}_5$ are colored, stable at room temperature, soluble in DMSO and melt with decomposition above 250°C . Therefore the ligands and their complexes were characterized on the basis of elemental analysis, ^1H NMR, IR, magnetic susceptibility measurement, electronic spectra data, melting

point, partial elemental analyses and molar conductivities. Benzophenone derivatives showed inhibition for alpha glucosidase. The inhibition was measured by IC_{50} value calculation. The compound V-M5 showed maximum inhibition at a concentration of $6.4\mu\text{g/ml}$

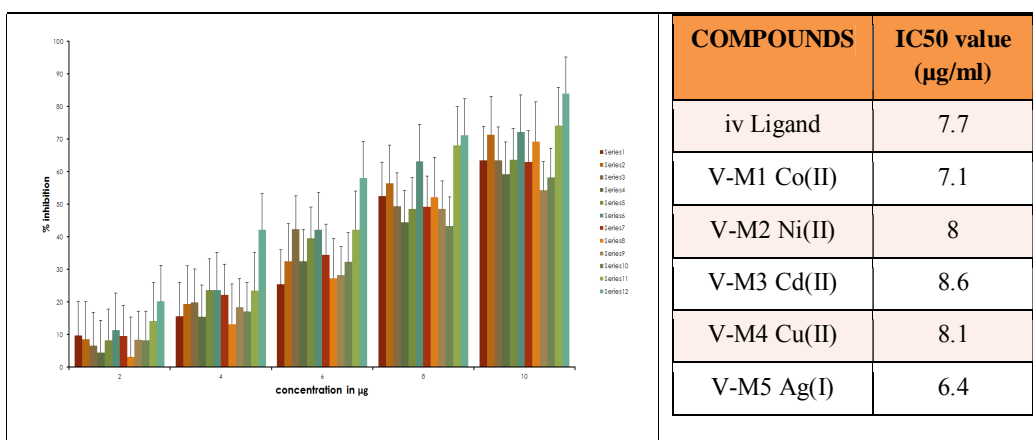
BIOLOGY: Antidiabetic Activity: Some of the reported antidiabetic metal complexes are



The activity was performed using assay mixture of 5µl of enzyme alpha-glucosidase, 50µl of substrate p-nitrophenyl-alpha-D-glycopyranoside and 10µg concentrations of different inhibitors were taken in test tubes and they were incubated for 30mins at 30°C. Then, the volume was made up to 1ml using phosphate buffer (0.1M, pH 7). A tube

containing only the enzyme and substrate was used as the control. The absorbance was measured at 405nm. Inhibitory activity was calculated by,

$$\text{Inhibition(\%)} = \frac{\text{Absorbance of the control} - \text{Absorbance of the sample}}{\text{Absorbance of the control}} \times 100$$



CONCLUSION

In conclusion, we have achieved efficient method for the preparations of Schiff bases and evaluated antidiabetic activity. Some of

the compounds exhibit minimum inhibition and compound VM₅ prove to be important antidiabetic agent.

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Prediction of Student's Future Interest Using Educational Data Mining.

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Abstract: *Data mining methodology helps to extract the hidden knowledge and information which have been inherited in the data used. Educational Data Mining (EDM) is concerned with mounting methods to determine facts from data, especially unknown knowledge-driven pattern from educational repository in order to highlight the strength and weaknesses of the student. Students Future prediction is important because it help students to reach their goal, helps to choose a better carrier. This paper proposes a system which can categorize the students into grade order to predict their future Interest. By conducting aptitude test every week and by calculating the result, systems predict the interest and notification will be send to the parents. In all their education studies it helps to improve 'students' performance. Proposed System uses Educational Data Mining techniques to improve 'students' performance and predict their future interest. For predicting the student interest we are using data mining concepts like classification.*

Keyword: *Educational Data Mining (EDM), Classification, Prediction.*

Introduction

Education sector has a lot of data in the form of student information. An educational institution needs to have an approximate prior knowledge of enrolled students to predict their performance in future academics. This helps them to identify promising students and also provides them an opportunity to pay

attention to and improve those who has interest in a particular subject.

Application of computers on this data can extract valuable information to provide quality education. Quality education does not mean high level of knowledge produced. But it means that education is produced to students in efficient manner so that they learn without any problem. For

this purpose quality education includes features like: methodology of teaching, continuous evaluation, categorization of student into similar type, so that students have similar objectives, educational background etc. Educational Data Mining helps to find the hidden information, where as in proposed system EDM helps to find the hidden talent of the student. EDM helps to highlight the good performance of the student.

Proposed System can identify student performance in each subject suggesting them and to their family regarding his/her more interested subject and suggestion related to respective areas of work, test at risk students and to develop a predictive model to predict student academic performance in educational institutions, which helps to predict their future results.

The proposed system consists of two functionalities, this system suggest student's based on their interest in subject so that student can think about future areas of working easily.

Literature Review

Studies so far shows that Automated Speed Governor is gaining much more attention **Abeer Badr El Din Ahmed et al. [1]** proposed system which explains decision tree method is used on student's

database to predict the student's performance on the basis of student's database. They use some attribute were collected from the student's database to predict the final grade of student's. This study will help the student's to improve the student's performance, to identify those students which needed special attention to reduce failing ration and taking appropriate action at right time.

Komal Jirage1et.al [2] proposed system that has data clustering technique named k-means clustering is applied to analyze student's learning behavior. The student's evaluation factor like class quizzes, mid and final exam assignment are studied. It is recommended that all these correlated information should be conveyed to the class adviser before the conduction of final exam. This study will help the teachers to reduce the drop out ratio to a significant level and improve the performance of student. This work may improve student's performance; reduce failing ratio by taking appropriate steps at right time to improve the quality of education.

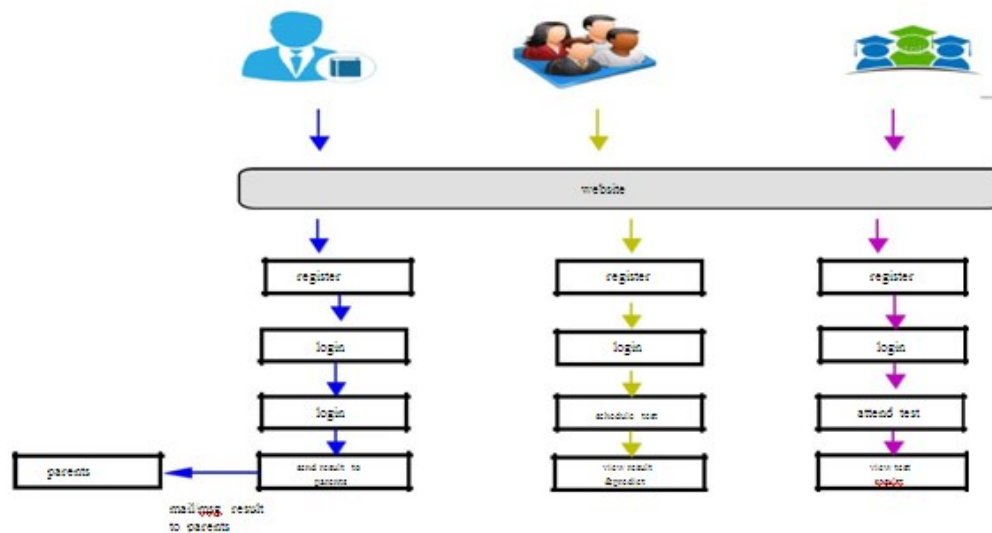
Amjad Abu Saa [3] proposed system here multiple data mining tasks were used to create qualitative predictive models which were efficiently and effectively able to predict the students' grades from a

collected training dataset. A survey was constructed that has targeted university students and collected multiple personal and academic data related to them. The collected dataset was preprocessed and explored to become appropriate for the data mining tasks. Third, the implementation of data mining tasks was presented on the dataset in hand to generate classification models and testing them. Then interesting results were drawn from the classification models, as well as, interesting patterns in the Naïve Bayes model was found. it was slightly found that the student's performance is not totally dependent on their academic efforts, in spite, there are many other factors that have equal to greater influences as well.

Methodology

Data mining is the process of discovering interesting knowledge, such as associations, patterns, changes, significant structures and anomalies, from large amounts of data stored in databases. Classification is a data mining technique that maps data into predefined groups or classes. It is a supervised learning method which requires labeled training data to generate rules for classifying test data into predetermined groups or classes.

Clustering technique is the task of segmenting and arranging a diverse group into a number of identical subgroups or clusters. Clustering of data is a technique in which we form clusters of object that are same in function and characteristics.



Proposed system has, admin who will add both students and faculties of the school .faculty is the one who will conduct a test .students attend the test and get results. Based on the result faculty predict the student's future interest and admin is the one who will send the results to the parents.

Module Description

Student Module:

- Student register: Registration with basic details for student account.
- Student Login: Login with valid username and password.
- View performance: Student can view his/her performance based on test marks.

Faculty module:

- Faculty register: registration with basic details for faculty account.
- Faculty login: login with valid user name and password.
- View result and predict: faculty can view the result and predict.

Admin Module:

- Admin Login: login with valid username and password.
- Fill Student and faculty Details: Insert proper details of student and faculty of registered.
- Send predicted result: marks and predicted result details of student will be send to the parents.

Conclusion and Future Enhancement

The proposed system helps students to learn more about their interested subject also helps parents to decide their children's future interest. It helps more to the faculty members that they can give more concentration on each student based on their interest .This application can predict in which particular subject the students are good.

As a future enhancement they can develop an android application for this in which parents can use it.

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Intelligent Vehicle T³ System

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Abstract *The intelligent vehicle T³ system is a system which is going to collect toll, anti-theft and track the vehicle using Raspberry Pi3 and ARM 7 microcontroller with RFID TAG, RFID TAG, LCD screen, GSM and GPS modules. This paper proposes a System known as Intelligent Vehicle T³ which provides two facilities: such as Automatic Toll Collection and Alert about the vehicle theft. Proposed System uses IR sensors and RFID TAG, a unique id number which is mounted to a vehicle that will be read by RFID reader and deduct amount automatically this will be displayed in the LCD screen and updated to the database. System also tracks vehicle which indeed recovery vehicle if it is stolen and it has as a slid switch which is used to send information of stolen vehicle as it passes through toll booth so that the user can trace and track the vehicle online on website or they will receive information through SMS. Intelligent Vehicle T³ system uses some modules like GPS, GSM and RFID tag to perform the toll collection, anti-theft and tracking. All these features are achieved in an economical price which is afforded and implemented easily*

Keywords: *Raspberry Pi3, RFID TAG, RFID READER, IR sensor, GSM and GPS*

Introduction

Any vehicle in an automobile field, the maximum and high quality of features is given to the luxury vehicle, even the economy vehicle deserves some features and these days automobiles are more there are a lot of automobiles these are sometime causing traffic.

Toll gate collection in India is operated manually so it consumes more time, slow process, traffic jam, and increases vehicle operating cost, power loss due to the continuous turning on of receiver system, so there is need of automatic toll collection system to overcome the problem.

The security provided for the vehicle is not provide to the economy vehicles is locking system, few sensors and alarm system all these can be breached and the vehicle can get stolen so there is need of tracking system which can track vehicle and send the location.

To overcome this problems Intelligent Vehicle T³ system is IOT (internet of things) system. The system component interacts through IOT with the website, IOT help us to operate and monitor physical device. IOT is network of the device through which system communicates and share data

Intelligent Vehicle T³ system is the combination of automatic toll collection, anti-theft and tracking. These are going to be implemented using a Raspberry pi along with other module included in it. Using RFID TAG and Raspberry pi automatically collect toll Using GPS and GSM in micro controller track vehicle Get vehicle location from web application and through SMS.

Nowadays most vehicle are being theft, it is difficult to track and get back the vehicle and there are lot of issues to deal with the police, to avoid this consequences Intelligent Vehicle T³ system which will alert the user with the SMS when vehicle is on(or start)

Some benefits such as while moving vehicles Toll will be collected and no need for the vehicle to stop and you can avoids queue at toll

sufficient, the general security they booth and Saves time. It gives an additional security to the existing system of the vehicle. Using web application we track the vehicle. Location is sent through GSM and can be located using GPS, and Cost is affordable.

Literature Review

Studies so far show that automatic toll collection system is important and gaining more attention. **Dr. S. Hussain [1] et al.** proposed an automatic toll ticketing system using for transportation system using MSP430 processor. In this work propose a minimal effort and productive system called electronic toll collection utilizing RFID modules that consequently gathers the toll from moving vehicles when they cross toll boot it's pretty old system and it is slow

Atif Ali Khan et al. [2] proposed a RFID based toll collection system using Atmel8051 microcontroller and it uses active tag which consumes more power from vehicle battery and it is difficult to modify or update the system

V. Sridhar et al. [3] proposed a smart card based toll gate automated system using 8051 microcontroller. This system describes, the smart card removes handy cash-transaction to eliminate traffic at toll plaza. using smart card even consume time so it's not that efficient in saving time , It's better to use upgraded version like raspberry pi or Arduino

N. Poornima et al. [4] proposed an automated toll plaza verification system for an automobile at a check point using visual studio .net .08 software. The proposed system uses active RFID tags, which are placed on the vehicles.

SeokJu Lee et al. [5] proposed a vehicle tracking system using GPS/GSM/GPRS technology and smart phone application. An in-vehicle gadget, a server and a cell phone application are utilized for the vehicle tracking framework. In this work in-vehicle gadget is made out of a microcontroller Atmega328 and GPS/GSM/GPRS module. It uses google map which most of the time it is inefficient and we don't three module only two module is enough

(GSM and GPS) to show a vehicle area on google maps.

Pradeep V Mistary et al. [6] proposed a real time vehicle tracking system based on ARM7 GPS and GSM technology. This system shows a vehicle tracking system to track the correct area of moving or stationary vehicle in real time. This system is a combination of hardware module and programming module.

Sanchit Bhargava et al. [7] proposed a Vehicle Tracking System Using “GPS” And “Google Maps”. It only track the vehicle doesn't give any alert when a vehicle is stolen or some try to breach .Google maps are not always accurate

Methodology

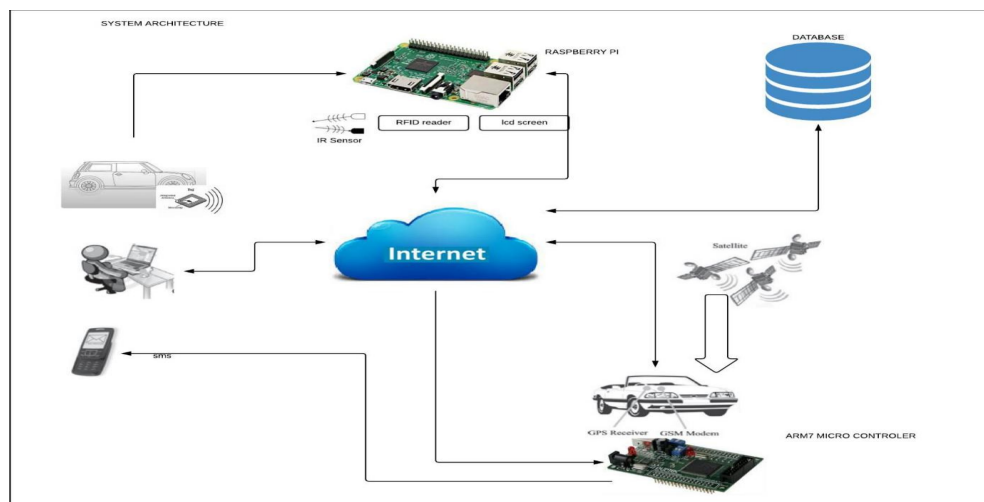


Figure 1.1: System Architecture

System description System architecture shown in figure consists of

Raspberry pi: Raspberry pi using RFID identifies and verifies the vehicle and interact with the database to deduct amount and update. It stores the information that is used to trace the vehicle

IR SENSOR module: IR SENSOR emits IR rays and receiver which receives the IR rays that falls on object and reflects back.it is used to detect vehicle and led light switch to yellow

RFID module: RFID TAG holds a unique id and can store information from 64bits to 1kb. System uses a passive tag which is efficient in power saving. Active tag needs a power supply to be but passive tag uses the power from the RFID tag reader (when the tag comes in the range of reader it gets activated) RFID reader reads the RFID tag and interacts with database where its going to verify and deduct amount and update the database

LCD screen: It is used to display information such has deduction of amount and vehicle detail .it displays two column

ARM7 microcontroller: With InSystem programming (ISP) and inapplication program 2.0 usb device controller CPU clock up to 60mghz. The GPS and GPS is integrated ,when a user request for vehicle location through website ,it interact with the microcontroller in which GPS gives the location and send it through GSM to website and to the number of the user through SMS

GPS module: Gets the location from satellite and pass this location (longitude and latitude) to GSM

GSM module: GSM is used to send the location via through SMS to user phone number (that would be registered) and send the location to the website

There are three scenario in Intelligent Vehicle T³ system

1. Automatic toll collection
2. Track vehicle: trace and track vehicle to get location through website or through SMS and store the information in the website database.
3. Anti-theft the microcontroller will send message when vehicle is switched on

Automatic toll collection is done using raspberry pi including with modules IR SENSOR, RFID TAG, RFID READER and LCD screen. Led lights are used to indicate vehicle detection and amount deduction

When a vehicle pass through toll booth IR sensor detect the vehicle and the RFID reader reads the RFID tag

.raspberry pi interact with database and LCD screen display the vehicle details and the amount deducted. If vehicle is not detected the LED light remains red else if vehicle is detected the led switch to yellow and after amount deduction it switch to green

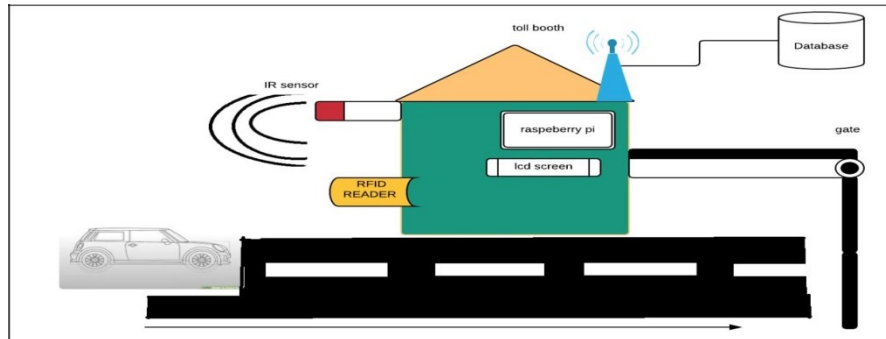


Figure 1.2: Toll Collection

Vehicle tracking and Anti-theft

Vehicle tracking is done using microcontroller with GSM and GPS component .user can send a request locate their vehicle by logging in to website and send request the website interacts with the microcontroller, GPS receive location from satellite sends the longitude and latitude to GSM.

The GSM will send the location (latitude and longitude) through SMS and to website .user can locate on the website or use the longitude and latitude received through SMS to locate in different map tool online(or offline) it is best to use with online

Proposed system uses a sliding switch is used which going to send information to authorities (police) about the stolen vehicle, if it pass through toll booth.

Conclusion and Future Enhancement

The proposed system collects the toll, anti-theft and track the vehicle in an efficient way and the price to implement is economically affordable. System uses a required and sufficient module, neither more nor less module in the system. Intelligent vehicle t³ system is efficient and performs well. Future enhancement is to accident detection and operating vehicle component such as switching on light, indicators and horn through your mobile.

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A STUDY ON “CSR INITIATIVES OF JUBILANT BHARTIA FOUNDATION”

(Special reference to Jubilant Life Sciences, Nanjanagud)

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Abstract

Society's expectation from businesses has increased in the recent times. Corporate Social Responsibility has gained significant interest in the recent years. Corporate Social Responsibility has evolved as an intrinsic part of today's corporate world. . CSR not only helps the company in building its image in the society but it also has a great impact on the society as it helps in developing the community through the activities it undertakes, which is in a way giving back to the society what it gains from it. . The descriptive design has been used in this study to learn more about the CSR activities of the company. It is important to notice that practice of Corporate Social Responsibility has become one of the essential factors in developing the community by the Business Houses. Sustainability has become the talk of the town in the corporate world.

Key Words: *CSR, Sustainability, Society, Community.*

INTRODUCTION:

Society's expectation from businesses has increased in the recent times. In the face of insecurity, backlash against globalization and mistrust on large businesses, there is a growing pressure on business leaders and their businesses who are expected to deliver wider societal value. This is heightened by the role of information technology especially the

internet which provides a widespread exposure about corporate abuses around the world.

Corporate Social Responsibility has gained significant interest in the recent years. Corporate Social Responsibility has evolved as an intrinsic part of today's corporate world. Corporations around the world are struggling with a new role, which is to meet the needs of

the present generation without compromising the ability of the next generations to meet their own needs. Organizations are being called upon to take responsibility for the ways their operations impact societies and the natural environment.

CSR policy functions as a built-in, self-regulating mechanism whereby a business monitors and ensures its active compliance with the spirit of the law, ethical standards, and international norms. CSR is a process with the aim to embrace responsibility for the company's actions and encourage a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere who may also be considered as stakeholders. ISO 26000 is the recognized international standard for CSR. Public sector organizations (the United Nations for example) adhere to the triple bottom line (TBL).

The World Business Council for Sustainable Development in its publication Making Good Business Sense by Lord Holme and Richard Watts, used the following definition – “Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of

life of the workforce and their families as well as of the local community and society at large”. According to the EU Commission (2002) – “CSR is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their interaction with their stakeholders on a voluntary basis.”

PRINCIPLES OF CSR:

Because of the uncertainty surrounding the nature of CSR activity it is difficult to define CSR and to be certain about any such activity. It is therefore imperative to be able to identify such activity and we take the view that there are three basic principles which together comprise all CSR activity. These are: Sustainability, Accountability, Transparency

RESEARCH METHODOLOGY:

Corporate Social Responsibility is very advantageous as it is used as a business strategy as it helps the organizations in building a trust with the community and also helps in increasing the goodwill of the company in the society. CSR not only helps the company in building its image in the society but it also has a great impact on the society as it helps in developing the community through the activities it undertakes, which is in a way giving back to the society what it gains from it.

AIM OF THE STUDY:

The study aims at knowing the various initiatives undertaken by Jubilant Bhartia Foundation under their Corporate Social Responsibility to improve the standard of living of the beneficiaries in the society within which they operate.

OBJECTIVES:

- To portray accurately the various CSR activities undertaken by Jubilant Bhartia Foundation.
- To understand the impact/effectiveness of the CSR activities on the community.
- To assess the impact of corporate social responsibility programs as perceived by Jubilant Bhartia Foundation in bringing changes in the life of the community they operate in.

RESEARCH DESIGN:

Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection. The descriptive design has been used in this study to learn more about the CSR activities of the company.

TOOLS OF DATA COLLECTION:

Interview Schedule to get practical exposure to know about the benefits

received by the beneficiaries. Also to know the positive impact of the activities on the community and the opportunities provided to them. Secondary data to learn about the overall details about the activities of the foundation and to get in-depth knowledge of the past services provided by the foundation under its CSR initiatives.

PLACE OF STUDY:

The universe of the study includes few of the villages (Kallahalli, Geekahalli, Geekahalli Hundi) that are looked after by the Jubilant Bhartia Foundation under its CSR initiatives undertaken by Jubilant Lifesciences Ltd, Nanjangud.

METHOD OF DATA COLLECTION:

The researcher also had a one to one interaction with the villagers or the beneficiaries regarding the impact of the CSR initiatives of the company in their lives and also to know about their opinions and experiences after the intervention of JBF into their lives. This interaction was based on an unstructured interview schedule prepared by the researcher to gain more insight into the activities and their effect on the community.

DATA ANALYSIS

The researcher collected the information

from the villagers from the 3 villages i.e. Kallahalli, Geekalli & Geekalli Hundi. They were chosen randomly. The study used informal session of interview with the villagers to gather information regarding the activities conducted by the Jubilant Bhartia Foundation. The following information was collected by the researcher through the interview. The information has been analyzed under the following headings by the researcher.

EDUCATION:

Primary education is the bed block on which a nation builds its future. Jubilant is committed to contribute its bit in bringing improvements in this vital sector of education. Their policy focuses on strengthening the existing educational infrastructure than to create parallel institutes for education. With this objective JBF has initiated the Project 'Muskaan' in 2007 for supporting Government Primary Schools in rural areas and work hand in hand with the authorities to bring about change in the society. The total number of beneficiaries from Kallahalli, Geekalli, Geekalli Hundi or 223 under project Muskaan.

1. Since how many years has Jubilant Bhartia Foundation (JBF) assisted your school?

The researcher collected information from 3 school & 2 anganwadis regarding the number of years that JBF has been associated with them. The researcher got to know that JBF has been associated with them since its initiation. The researcher found out that JBF has been extremely helpful in bringing up the school's premises & infrastructure.

2. What are the major facilities provided by JBF?

The researcher interviewed the head masters/head mistress of the schools to gain information regarding the major facilities that JBF was providing them. It was pretty evident that JBF has been extensively working in the field of education to provide quality education to the children of the villages. The work done by JBF has been very impressive & this was expressed by the interviewees. The major facilities that JBF provided them were, school, library books, sanitation & hygiene facilities, infrastructure facilities, plantation, water facility, teaching via radio as per the information provided by the interviewees.

3. Are the students benefited by the facilities provided by JBF?

The researcher collected the information from the students of 3 schools regarding the facilities provided by JBF. As per the

information collected, it was seen that the students were very happy with the benefits especially with the library books & also the facility under project Muskaan that undertakes gifting one story book to the children on their birthdays. Also the school children showed a lot of enthusiasm regarding the celebration of the school annual day as they get to showcase the talent. They are also benefited by the classroom facilities and also the infrastructure facility that provided by JBF.

4. Are the programs introduced by JBF effective in improving the quality of education?

As the researcher interviewed and observed the interviewees it was seen that the quality of education has improved since its intervention. Also the interest of the students in schools has increased which is a positive effect on the students as it decreases the dropouts among them. The students show a lot of interest in the books that are provided by JBF. Also the various programs that are provided under the Project Muskaan have increased the interest of the children, especially programmes such as Read India Programme and the Joy of Reading Programme that have inculcated in the children the interest to read and learn.

5. Has there been an increase or

decrease in the no. of dropouts after the intervention of JBF?

As per the data collected by the researcher, it was seen that the rate of dropouts had significantly gone down in the villages. All the three schools showed no dropouts in the present year. The heads of the school were really proud to give out the information that they have zero dropouts in the school and that all the children are showing a great deal of interest in attending the classes. This also shows that the quality of education has gone up by a notch as the parents in the village are taking more interest in sending their children to school than making them work or stay at home.

6. Does JBF support the students in higher education or provides any facilities for assisting them?

The researcher discussed with the heads of the school and also with a few parents regarding the support of JBF in providing facilities for higher studies as there are classes only till the seventh grade in all the schools in the villages. The villagers said that they have approached the foundation to ask for their support to increase the number of classes or grades upto high school but due to the lack of amenities such as land and infrastructure JBF has not been able to provide them with the needs.

But JBF has agreed to build the infrastructure for the schools if the villagers can provide them with the land in the villages.

HEALTH:

SwasthaPrahari – an initiative to reduce infant & maternal mortality ratio; Integrated Counselling & Testing Centre (ICTC) for HIV/AIDS & DOTS centre for Tuberculosis treatment.

Jubilant Bhartia Foundation (JBF) has started initiatives such as community health services, and SwasthyaPrahari project with the objective of strengthening healthcare services for the community around manufacturing locations. Their health camps help in keeping the community aware of prevailing diseases. The total number of beneficiaries from Kallahalli, Geekalli, Geekalli Hundi are:

1. What are the facilities provided by JBF with respect to health?

Health is a major focus under the CSR activities of JBF. The researcher gained a lot of information regarding the health facilities provided by JBF to the villagers. The major facilities provided as per the information collected from the villagers are – general health check-ups conducted by the doctors from JBF, medical camps conducted for school children, subsidized

or minimal fees for the health check-ups, free health check-ups for the villagers of kallahalli, out- patient services exclusively for the villagers of kallahalli in tie-up with JSS Hospital, Mysore. It was also seen that the pregnant women in the village were given special facilities for their & their baby's health. The primary health care centers are run by JBF in all the villages.

2. How regularly do they conduct general health check-ups?

As health is an integral part of the CSR activities, a lot of effort is put into taking care of the health of the community in which Jubilant Life Sciences is operating. The researcher collected the information that at all the villages except kallahalli general health check-ups are conducted twice in a week with the PHC being open from morning to afternoon. At kallahalli the general health checkups are conducted 5 days a week as it falls under the immediate vicinity of the company.

3. What are the special health campaigns conducted by JBF?

JBF conducts a variety of campaigns when it comes to health awareness. The data collected from the villagers tells us that the various campaigns conducted are- eye check-up camp, dental health camps, campaign on maternal & child health, general health check-up camps and also



HIV awareness camps. Few camps are specially conducted for school children at the villages.

4. Do they provide facilities with affiliation with other hospitals?

Yes. According to the information gathered from the villagers, JBF provides out-patient facilities in affiliation with JSS Hospital, Mysore. But these out-patient services are restricted to the villagers of kallahalli because kallahalli falls under the immediate vicinity of the company. And the villagers need more health care facilities as compared to other villages. Also the expenses of the out-patient facilities are all borne by the company.

LIVELIHOOD:

At Jubilant Bhartia Foundation, they believe that entrepreneurship is the most important tool not just for economic growth but also for presenting solutions to prevalent social problems. To improve the employability skills of the youth, Jubilant Bhartia Foundation, (JBF) has introduced NayeeDisha, a vocational training programme. Under this project, we conduct skill development programme at JBF's Vocational Training Centres at different locations aimed at helping the trainees find 'skills for life' on successful completion. The training programs are provided across

a wide array of areas like mobile and tractor repairing, stitching, retail management, soft skill development and beautician courses, offer the right mix of 'class room' and 'hands on' training for optimum results. The number of beneficiaries under this programme from Kallahalli, Geekalli & Geekalli Hundi are:

1. What are the various livelihood trainings provided by JBF?

As per the information collected from the Vocational Training Centre (VTC) & Stitching Centre the following trainings have been provided to the youth under livelihood programme- personality development course & course in spoken English, beautician course, tailoring courses, basic computer course, electrical course. These trainings are provided and also placements are taken care after the training. As per the interaction with the students of the courses it was seen that tailoring, beautician & the work place skills (WPS) have the most demand among all the courses.

2. Does JBF provide any employment opportunities other than the training programmes? JBF has undertaken the provision of employment opportunities for the youth. It has outsourced its training facilities to a company called Labor Net

that undertakes the training & placements of the youth at the VTC. As per the information collected from the trainees at labor net the researcher got to know that labor net provides 100% employment opportunities to the trainees. Labor Net is in collaboration with companies like Schneider electrical & Godrej that help in providing training facilities & also provide employment opportunities. At the Stitching center labor net provides the trainees with contracts from nearby companies for their uniform stitching.

3. Do they collect any fees for the training programmes conducted by JBF?

Yes, a certain amount of fees is collected from the students or trainees at the VTC. The fees amount is minimal & feasible for the students as per the courses. The fees structure ranges from Rs 500-750 for the courses provided at the VTC. And also according to the economic status of the student concession are provided to them on the fees structure.

4. Does JBF support in any other way to support your livelihood?

As per the interview with the ladies at the Stitching Centre the researcher got to know that JBF had helped them organize a self help group (SHG) so that they could financially help themselves in times of need. Also JBF helps the villagers to get

loans for their independent employment at a subsidized rate of interest. Also JBF provides employment opportunities to the trainees & villagers at Jubilant Life Sciences as contract labors.

FINDINGS & DISCUSSION

On the data collected by the researcher and the analysis done on the information collected in the above chapter, the researcher has obtained the following findings and has interpreted them in the discussion in this chapter.

- It was observed that Jubilant Bhartia Foundation has a very active way of delivering their CSR activities and take up the activities very seriously.
- The CSR activities of JBF are delivered based on the needs of the villagers. It was seen that the major objective of JBF is to provide good quality of services to the community.
- JBF also helps in creating a learning environment for trainees at the training centres.
- JBF has helped in providing better employment opportunities to the villagers and the youth ever since its initiation.
- The extensive CSR activities undertaken by JBF have helped in

creating a good bond with the villagers.

- It has been a great source of motivation to the children in terms of their education and also has helped in the eradication of child labour from the vicinity.
- It has focused on the concept of women empowerment and in doing so has helped the women in taking up self employment.
- A major contribution of JBF to the village of Kallahalli has been the installation of the water purification system in the village to provide them with clean and pure drinking water facility.
- It has also undertaken activities to promote and provide the villagers with better sanitation and hygiene facilities and also to create proper awareness among them.

- It has been helpful in building up the village infrastructure with respect to drainage and water facilities in the village. It has also focused on preserving the environment of the villages nearby by planting trees.

CONCLUSION

It is important to notice that practice of Corporate Social Responsibility has become one of the essential factors in developing the community by the Business Houses. Sustainability has become the talk of the town in the corporate world. The company act 2013 mandates Corporate Social Responsibility for every organization irrespective their structure and size. It's high time to think in getting involved in CSR to have sustainable development of the society and the Nation.

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