

First Aid Medicine Vending Machine for Accident Zones of Bangalore City- An Analysis

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Abstract

India ranks number one for the number of road accident deaths caused across 199 countries as reported in the World Road Statistics, 2018 followed by China and US (Business standard, 2022). As per the WHO Global Report on Road Safety 2018, India accounts for almost 11% of the accident-related deaths in the World. Many of the fatal injuries could be avoided if the victim had quick access to the medicine. The aim of this project is to analyze and provide insights to the implementing party such as social entrepreneurs, start-ups or government agencies about the potential of installing First Aid Medicine Vending Machine in the accident-prone areas and in the locations having less access to medicine. In the event of a mishap at locations where therapeutic stores are not within the compass, First Aid Medicine Vending Machine ensures the availability of first aid kit 24x7. It has a QR code, which can be scanned by the customers to make payments for the first aid medicines received. The machine would be capable of accepting paper notes and also scan debit or credit cards. Also, it is proposed to provide the nearest hospital address and contact numbers on the machine. The project proposal includes: Identified accident zones in Bangalore city, Human Resource framework and strategies to implement the proposed plan, Marketing strategy and promotional plan to create awareness among consumers about the usage of First Aid Medicine Vending Machine, Cost analysis for the implementation of the proposed project.

Keywords

First Aid Kit, Medicine Vending Machine and accident.

1. Introduction

India ranks number 1 in the total number of road accident deaths across the 199 countries as reported in the World Road Statistics, 2018 followed by China and US. As per the WHO Global Report on Road Safety 2018, India accounts for almost 11% of the accident-related deaths in the World. Report published by the Union Ministry of Road Transport and Highways, Road Accidents in India (2021) states that India, with only 1% of the world's vehicles, accounted for 11% of all accident-related deaths. Further, 29.5% of these road accidents were fatal, claiming 1.5 lakh lives. There are approximately 20 accident zones in Bangalore which cost 7700 lives in past 12yrs.

It is likely that, some of these deaths could have been avoided if the victim had got prompt emergency medical care. Infact, in the Pt Parmanand Kataravs. Union of India and Ors case (1989), the Supreme Court had held that Article 21 of the Constitution includes the right to emergency medical care.

The Supreme Court had also emphasized the importance of the "Golden Hour" that is 'the time period lasting one hour following a traumatic injury during which there is the highest likelihood of preventing death by providing prompt medical care'. The mandated response time for cardiac, respiratory, stroke and accident cases is 10 minutes. However, actual response time for all these types of emergencies was above 10 minutes in more than 60% of cases. Further, in 50% of trauma cases, the patients were admitted to the hospital after the "Golden Hour".

Many of the fatal injuries could be avoided if the victim had quick access to the medicine.

The aim of the project is to analyse the feasibility of installing First Aid Medicine Vending Machine at accident zones of Bangalore city using management concepts. This would provide a solution to give access to first aid kit to the minor accident victims and ensures availability of it 24x7. This will be very useful in giving immediate help in case of any minor accident on highways, remote areas, rural areas and places where medical stores are not within the reach.



Figure 1. First Aid Medicine Vending Machine
Source: Indiamart

The above Figure 1 represents the First Aid Medicine Vending Machine which is used for storing medicines used for first aid. The below Table 1 represents the list of medicines which can be stored in the First Aid Medicine Vending Machine.

Table 1. Items in First Aid

Items in First Aid Kit		
Particulars	Quantity	No.'s
Gloves	2 Pair	1
Povidone iodine ointment	10g	1
Povidone iodine powder	10g	1
Iodine Tincture	30ml	1
Cotton swab/balls Dry		10
Cotton swab wet		10
Gauze Pad	1pc	2
Micropore/Medical tape		1
Hand sanitizer	50ml	1
Volini/moov spray or gel		1
Glucan-D Powder	30g	1
ORS Powder	30g	1

The above Table 1 shows the number of items that are proposed to include in the First Aid Medicine Vending

Machine along with a user manual as referred in Figure 1. It guides the people with the procedure of treating the injured. These items are considered based on the suggestion of the doctor.

1.1 Objectives of this Study

The proposed research has been carried out to accomplish the following objectives.

- To identify and analyze accident zones in Bangalore city in order to identify the suitable spot/location for installation of First Aid Medicine Vending Machine
- Providing Human Resource framework and strategies to carry out the proposed plan by the implementing agency/party
- Developing marketing strategy and promotional plan for creating awareness among the consumers to use the First Aid Medicine Vending Machine
- To estimate the approximate cost for practical implementation of the proposed project

2. Literature Review

Julia et al. (2020) stated that, it is essential to provide non-prescription medicines and contraceptive items for purchase to those students who want only those items and not requesting further evaluation or treatment. Hence, to increase the access to non-prescription contraception on a 24-hour basis, the author recommended the installation of Medicine Vending Machines at needy places. Nazerk et al. (2020) in their research proposed a project with the aim of implementing a business idea that would provide a solution to a particular problem with use of microcontrollers, in particular Arduino or Raspberry Pi. One of the constantly overlooked problems in the Nazarbayev University is the absence of twenty-four hours' medicine provider. There is a medical Centre, but it does not work at night, and the only pharmacy is located not in the main dormitory. This paper offered a change to the present vending machine paradigm for providing medications (medication). Vending machines would improve social interaction. In the case of pandemics/epidemics, such as the 1918 influenza pandemic, distance is necessary. It also suits the COVID-19 situation. Kishnupriya et al. (2020) discussed the design of an automatic medicine vending machine using PIC microcontroller interface with GSM, LCD Display, Keypad, NFC Tag, Dispenser box. Any Time Medicine Vending Machine has been executed on Arduino Mega 2560. This system can fetch out the medicines without any human intervention. To magnify the security, RFID is used, as each person would be able to access only with their unique ID's. If the quota of medicines is over, using Arduino Mega and GSM alert message is sent to the authority for their fulfillment. The main intent of this project is to make medicine accessible to all people irrespective of their locations system providing medicines at all time and helpful to accident zones. Vishnupriya et al. (2020) in their research found that, public or society is facing a problem to get medicine at all places easily. Medicine Vending machine would make life a little easier. User will be able to get basic over the counter medicine at any time (24x7). Minor illnesses treatment emergencies, access to medicine at night time and first aid kit medicines are easily accessible due to medicine vending machines. Dragan et al. (2019) stated that medicine vending machines can be found in a variety of settings around the world, including vending machines selling food, drinks, cigarettes, newspapers, and other items. Despite all of the existing usage of pharmaceutical vending machines, they could not say that they are widely employed that their full potential has been fully realized. Chuanmei et al. (2020) found that the New Pharmaceutical Vending Machine (NPM) includes several features, including self-detection of body temperature and pulse, remote medical consultation, precise positioning of the pharmaceutical vending machine, quick search and purchase. It allows users to buy medications quickly, correctly, and safely. The New Pharmaceutical Vending Machine (NPM) can interact with hospitals, communities, and patients via an application that cannot only meet users' individual demands, but also effectively run the machine. Besides social distance, there are other advantages such as patients can access medication 24 hours a day, seven days a week, and pharmacies can work more effectively (cheaper medication delivery). In principle, the suggested NPM can be considered as one of the most crucial services (in health-care domain) supplied by smart cities, because people's health is paramount. For all governments, the most crucial goal is to achieve.

However, there were a huge number of research articles based on the technical aspects of the Medicine Vending Machines but very less number of papers available on the implementation strategies.

From the above literature review, it is found that the majority focus is on:

- Providing 24*7 emergency services
- Increasing health care services
- Easy access for medicines

The aim of this project is to analyze and provide insights to the implementing party such as social entrepreneurs, start-ups or government agencies about the potential of installing First Aid Medicine Vending Machine in the accident-prone areas and in the locations having less access to medicine. In the event of a mishap at locations

where therapeutic stores are not within the compass, First Aid Medicine Vending Machine ensures the availability of first aid kit 24x7.

2. Methods

In this project, initially the awareness among the people about the vending machines was collected using a questionnaire.

- *Primary Data Collection*

Response was collected from the 72 people using a questionnaire and it was analyzed using SPSS to understand people's opinion about implementation of vending machines at particular accident prone zones.

- *Survey Instruments*

A questionnaire was developed to collect the responses of the people. Personal information of the respondents was kept confidential and data was for study purpose. The questionnaire was distributed through Google form.

- *Secondary Data*

Secondary data was collected to identify and locate total accidents in Bangalore. It was analysed to identify fatal and non-fatal accident rates and injured ratio throughout Bangalore and to identify top ten most accident prone areas and finding out accident spots and hospitals nearby.

3. Results and Discussions

The secondary data analysis has been carried out and the results are as mentioned in the below sections.

3.1 Road Accidents Analysis Report for Bangalore City

Road accidents are the eighth leading cause of death responsible for 1.24 million deaths/year. 20 to 50 million non-fatal injuries are faced by young people aged 15–29 years. Accidents costs 1–2 % of low- and middle-income countries GNP (US\$100billion/year), attributed to rapid rate of motorization. Absence of investment in road safety strategies and land use planning.

- India is 3rd most popular city
- Population – 12 lakhs (as per 2021 census)
- Vehicle Population – 82.5 lakhs
- 9.8 times increase in fatalities
- 7.3 times increase in injuries
- Number of accidents increased 4.4 times

3.2 Accidents Statistics in Bangalore City

The below Table 2 shows the accident statistics in Bangalore (Table 2).

Table 2. Accidents Statistics in Bangalore

Year	Fatal	Killed	Non-Fatal	Injured	Total
2011	727	757	5297	4976	6024
2012	740	760	4767	4471	5502
2013	737	771	4493	4289	5230
2014	711	737	4293	4096	5004
2015	714	740	4114	4047	4828
2016	754	793	6752	4193	7506
2017	609	642	4455	4256	5064
2018	661	684	3950	4133	4611
2019	744	766	3944	4253	4688

2020	622	647	2,614	2,760	3,236
2021	618	651	2593	2828	3211
2022(Feb)	102	105	437	481	539

The share of fatal accidents and non-fatal accidents to the total accidents is at 26.57 percent and 73.43 percent during 2022. We see that the non- fatal accidents are more in Bangalore compared to fatal accidents.

3.3 Top ten most accident-prone areas in Bangalore

The below Table 3 shows the top ten accident prone areas in Bangalore.

Table 3. Top Ten Accident Prone Areas in Bangalore

Areas	Accident spots	Hospitals	Number of accidents
Madivala	Near Gangotri circle, 20 th main, 10th cross, Madivala Near Silk Board junction,Silk Board Near Silk Board Downd Ramp, Towards Madivala, Hosur Main Road Lakshmivenkateshwara Temple, Rupena Agrahara, Hosur Main Road	Life care Hospital, BTM layout Prashanth hospital Hosur Road Aswad Hospital, HSR layout, sector 6.	931
Electronic City	Elevated Fly over, Near Singasandra (ECITY Cr NO 22/2017) Hosur Main road, , Near Singasandra Bus Stop(ECITY Cr NO 07/2017) Hosur Main road, VeerasandraJunction(ECITY Cr NO 110/2017) Velankani road, Near SJR Apartment(ECITY Cr NO 74/2017)	HospitecMultispeciality Hospital, AECS Layout, Singasandra. Springleaf Hospital, 60/3, Hosur Rd, next to Andra Bank, Konappana Agrahara, Electronic City.	731
Mico layout	Near Reliance Fresh, BTM 100 Feet Ring Road(Cr. No-19/2017) K R Chicken Shop, Opp to St John Wood Apts, Tavarekere Main Road(Cr. No-83/2017) B G Road Near Poorvika Mobile Store, Billekahalli (Cr. no-177/2017)	1.MARIGOLD HOSPITALS, Stage 2, BTM Layout. 2.Shree devi clinic & day care center. Bannerghatta Main Rd, Sundar Ram Shetty Nagar, Bilekahalli.	669
K R Puram	. FCI gowdown road (KRP 21) . Ring road near old madras road (KRP 224) . ORR curve near ASR convention Hall	Asha nursing home near Ring Road DoddaBanaswadi Main Road	641
Whitefield	. opptninehall apartment, vijayanagara main road,whitefield(White Field Cr No 120/2017) . Ramagondanahalli Bus stop(White Field Cr No 367/2017) . Near ITPL Main gate,ITPL Main Road(White Field Cr No 325/2017) . In front of Anjinappa building, ChannasandraNagondanahalli Main Road(White Field Cr no 345/2017)	Dr. Munisingh hospital, palm meadows, Sathya sai layout. Manipal hospital,Whitefield Main Rd, Varthur Kodi, Palm Meadows, Ramagondanahalli, Whitefield,	568
Airport Road	Outer Ring Road,NearJ.P.MorganCompany,Kadubisanhall (Cr. No-09/2017) 2. Under pass in front of IOC petrol Bunk(Cr No-119/2017)	Janani Clinic Bharathi Clinic	511

	3. Outer Ring road, Near Kadubisanahalli Bridge middle Servise Road (Cr.No 179/2017)		
Kanakapura Road	Konanakunte cross signal Sarakki Signal	Sri Sai Ram Hospital, 6 J C Kanakapura Road, Industrial Area, near Metro, Yelachenahalli. Ring Road Hospital Umarbagh Layout, Banashankari Temple Ward	480
Uttarahalli Main Road	Dr, Vishnuvardhan Road, near Patalamma Temple. Uttarahalli Circle, near Uttarahalli Bus Stop	Poorna Multi Speciality Clinic, Poorna Pragna Nagar, Purnapragnya Layout, Poornapragna Housing Society Layout. Manipal Diagnostics, 23, Subramanyapura Main Rd, Friends Colony, Uttarahalli Hobli.	450
Kadarenahalli	Outer Rind Road , near Kaderanahalli Under bridge. Yarab Nagar	Sagar Hospitals Kumaraswamy Layout	520
Bannerghatta	Near Tilak nagar police station. Swagath Road, Jayanagar 3 rd block. JD mara junction, Bannerghatta Main Road	Surya Clinic Ent, 77. 16th cross, 4th A Main Rd, JP Nagar 4th Phase, Phase 4. Medicure Hospital As Health Matters. 28, 8th Main, Jayanagar 3rd Block East, Near- L I C Colony.	620

3.4 QR Code for Payment

A QR code has been generated from <https://www.the-qrcode-generator.com/> 'The QR code Generator' (Figure 2).



Figure 2. QR Code

The QR code can be scanned by the customers to make payments for the first aid medicines received (Figure 2).

3.5 Primary Data Analysis

The below tables and graphs show the analysis of the questions (Figure 3 Table 4).

3.5.1 Question 1: How often witness accidents near your places

Table 4. Frequency of Accidents

		Frequency	Percent
Valid	Mode	18	25
	Often	17	23.6
	Rare	18	25
	Very rare	19	26.4
	Total	72	100

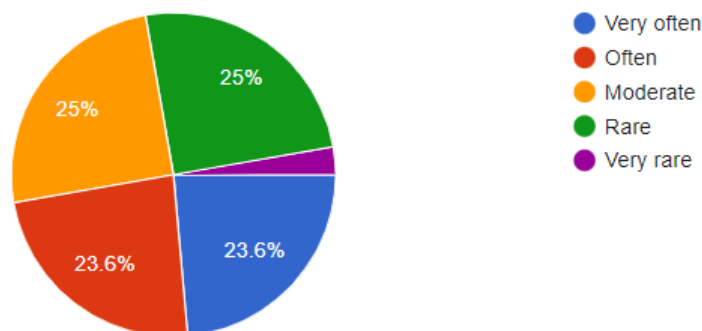


Figure 3. Pie Chart to show the Frequency of Accidents

The above chart shows how often accidents take place near all the places. The pivot chart illustrates the majority of people opted that accident occurs very moderately equivalent to often as well, with a percentage of 25 each (Figure 3 and Table 4).

3.5.2 Question 2: Which accidents do you think occur more?

Table 5. Accidents severity that can occur

		Frequency	Percent
Valid	Fatal	11	15.3
	Highly	28	38.9
	Injured	33	45.8
	Total	72	100

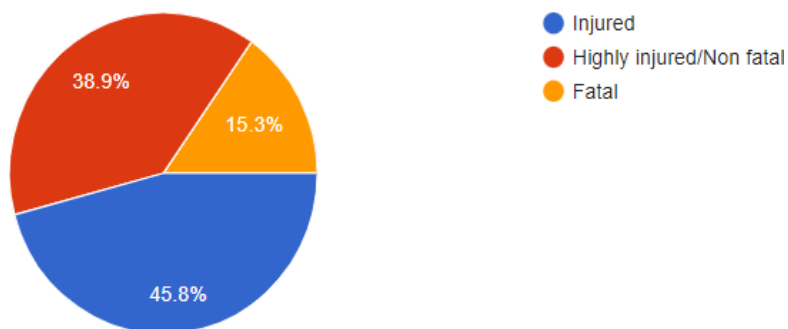


Figure 4. Accidents severity that can occur

Injured accidents are noted more with the percentage of 46 and the next is highly injured accidents with almost percentage of 38.9 (Table 5-6 and Figure 4).

3.5.3 Question 3: Do you think medical services are available easily when met with an accident?

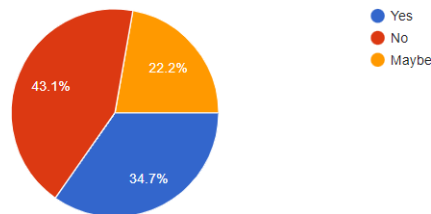


Figure 5. Availability of medical services during accidents

The majority stands with no with this case with the percentage of 43.1 and rest fills up with yes, maybe with 34.7% & 22.2% (Figure 5)

3.5.4 Question 4: Do you think first aid can be helpful to a certain extent before reaching the hospital?

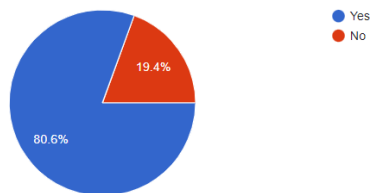


Figure 6. To what extent first aid kits are helpful

Most of the responses recorded with yes (80.6%) which found useful and opinion also matters with no at 19.4% (Figure 6).

3.5.5 Question 5: Are you aware of giving a basic treatment using the First aid kit?

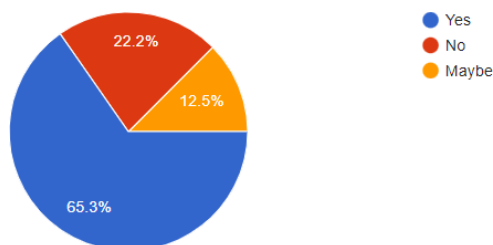


Figure 7. Awareness of first aid kit usage

As primarily educated and illiterate people both can treat with the first aid at the percentage of 65.3. Major injuries need to be taken to the hospital/intensive cares where this fills with no, maybe 22.2% & 12.5% (Figure 7).

3.5.6 Question 6: Have you ever been in a situation when you needed a first aid kit and couldn't find it?

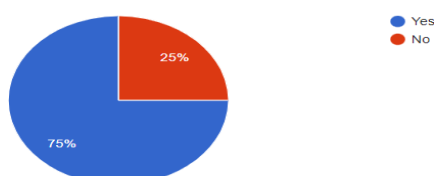


Figure 8. Availability of First Aid Kits

Opinion people opted with maximum percentage of 75% , whereas in remote places its difficulty to get first aid kit .Rest developed areas maintained at the average of 25% (Figure 8).

3.5.7 Question 7: How will you rate the necessity of this first aid vending machine in medical emergencies?

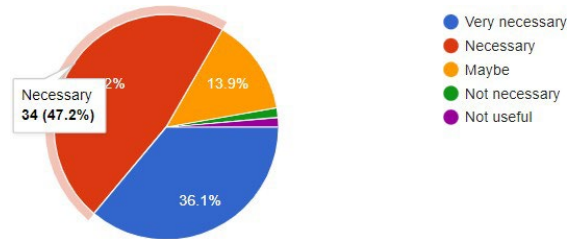


Figure 9. Necessity of First Aid Kits

We have recorded with equivalent 47.2% very necessary and 36.1% necessary and rest is with the not necessary and some found not useful (Figure 9).

3.5.8 Question 8: Places preferred to install vending machine

Table 6 .Places preferred to install vending machine

		Frequency	Percent
Valid	Bus Stops	27	37.5
	Malls	3	4.2
	Metro Stations	19	26.4
	Parks	14	19.4
	Petrol Bunks	9	12.5
	Total	72	100

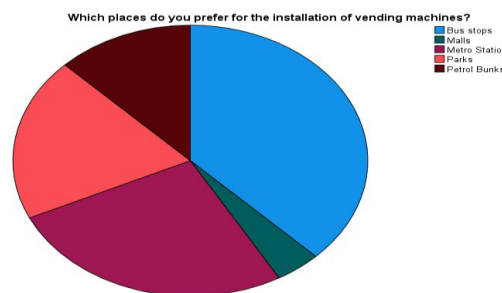


Figure 10. Places preferred to install vending machine

Most of the people preferred near bus stops with the percentage of 37.5 and next required places are, metro stations malls, parks and petrol bunks (Figure 10).

4. Project Concept

The project concept is to analyse how a first aid medicine vending machine can be implemented using management concepts that would provide a solution to reduce death rates by at least little percentage.



Figure 11. Features of Medical Vending Machine
Source: Indiamart

Features of Medical Vending Machine

Features of the proposed First Aid Medicine Vending Machine are as mentioned below.

Communication: Web based Reporting Software Connectivity Ethernet Networking (Figure 11).

Electrical Requirements: International: 230 VAC/50Hz, 0.6 AMPS

Dimensions:

Height : 6 Feet, 72" (183cm)

Width : 2.5 Feet, 30" (76cm)

Depth : 2.5 Feet, 30" (76 cm) Shipping Weight: 50 Kg.

Standard Features:

Keypad, *SAP Delivery Sensor System, Push Door (Optional)

LED Lighting Temperature Monitoring **Options:**

Debit Card Reader, Note Acceptor, QR Code Pay, Coin Acceptor and Changer and Remote Inventory Management. Optional Point of Interface (Proxy, RFID, Card Reader, Mag Stripe, Biometric, Bar Code Cellular Modem Networking

Features:

Intelligent Control System State-of-the-art control system allows secure web based interface for 24/7 real-time reporting of transaction

Hardware:

Microprocessor–ARMLPC2148

4*4Keypad

LCD-16x2

RFIDReader

MedicineDispenser

Motor

L293DDriver

7812/7805 voltage regulators for powersupply

Power supply circuit
LM317

Software:

Embedded c
Kiel-c compiler
Flash magic burners software.
JTAG Debugger.

5. Marketing Strategy

Medical Vending Machine does not only benefit solely for the vending machine operators to gain profits by selling the items in the vending machine. As they are deployed in the high-traffic locations, the Vending Machine can also serve as an effective channel to advertise, market and promote brands. It helps in meeting the goals of various marketing strategies and the ever-rising demands of the consumer brands as part of **brand engagement** with their consumers.

a. Promotional Plan

First Aid Medicine Vending Machine's awareness efforts will be benefitted from public relations and media. Awareness will be aided by feature articles and product reviews. Buyer impressions will be aided through direct mail sent to buying and influential groups, as well as advertisements in trade and consumer target magazines. First Aid Medicine Vending Machine requires the product and services in collaboration with physicians and home nursing experts. The value of collaborating with doctors is well investigated.

b. Value Added Services

i. Ambulance Facility:

In the event of an emergency, the patient can call the Ambulance Services available at a specific site, as the contact number of the nearest hospital would be provided on the machine.

ii. First-Aid Facility:

This function enables the patient to use first-aid kit components such as cotton, bandages, adhesive tape, antiseptic, and so on.

iii. Direct Calling Facility:

If a patient has symptoms that he is unable to recognize or wishes to seek counsel from a consultant, he can call the expert (doctor) immediately for assistance. Through the Global System for Mobile Communication (GSM) system, the call will be connected immediately through the machine.

iv. Dynamic GPS:

Consumers can access the location of nearest medical vending machine through their smart phones and devices.

v. Smart Card Facility:

Using a smart card will simplify transactions by eliminating the need for a coin assembly mechanism.

vi. Restocking Drug Alert:

This feature will be developed in such a way that if a specific medicine is out of stock, it will be notified.

5.1 Human Resource Cost Analysis

Human Resource (HR) strategy is a overall plan for managing its human capital for aligning with its business activities. HR strategy for the proposal of First Aid Medicine Vending Machine for accident zones is to support the overall business plan.

The job roles such as Drivers, Technician, Attendant and Inventory Manager need to be recruited.

5.2 Financial Analysis

In this project financial analysis is required for the following reasons.

- Assessing the operational efficiency and managerial effectiveness of the company.
- To determine the success of the company's operations
- To investigate the future prospects of the enterprise
- To ascertain the profitability of the company over a period of time.
- To assess the earning capacity or profitability of the firm.
- To help in decision making and control.

The below Table 7 represents the total capital requirement for the project. It has been calculated based on approximate values; it can be higher or lower when implemented.

Table 7. Approximate Capital Requirement

A	Fixed Capital	Amount
	Land and Building	0 - 40L
	Vending Machine	2.0L - 5.0L
	Misc. fixed assets.	0.30k - 1.0L
	Preliminary & pre op. Expenses:	0.10k - 1.0L
B	Working Capital :	
	Finished & Packed goods	0.29K - 1.0L
	Working Expenses	0.16K - 1.0L
	Particulars	Amount
	Bank Finance (60%)	2 - 5L
	Margin Money(40%)	2 - 5L
C.	Capital Cost of Project	
	Fixed Cost	5 - 10L
	Margin Money for Working Capital.	2 - 8L

Table 8. Operating Expenses

Finished and Packed goods	29 - 50K
Utilities	40k - 1.0L
salaries and wages	1.5L-3.0L
Rent, Insurance etc.	30k - 60k
Other overheads	35k - 80k
Interest on term loan @ 12.50%	21k - 30k
Interest on bank finance	30k - 60k
Depreciation at 10% on Machine	20k - 40k

The above Table 8 represents the operating costs that are included in implementing this project (Table 8). Based on the analyzed data, the profit and the ROI can be in the range of 10-50% per year initially. If people make use of the facility and it gains popularity, then the return on investment is expected to increase.

5. Conclusion

This study has been conducted by the MBA students of Ramaiah University of Applied Sciences to provide necessary insights and analysis for the proposal of First Aid Medicine Vending Machine for the accident zones of Bangalore city. This Project Proposal is expected to assist social Entrepreneurs, Government Initiatives/agencies and other companies for the implementation of proposed plan to utilize the potential of Medicine Vending Machine. Following are the results of analysis carried out in this project work:

- Bangalore city is in third place with 5520 accidents occurring, movement of around 42 lakhs of vehicles and 740 deaths due to accidents.
- We have observed that 481 people were injured, 437 accidents were non-fatal, 105 accidents were killed, 102 accidents were fatal during 2022 till February 2022. During 2021, 2828 accidents were injured, 2593 accidents were non-fatal, 651 accidents were killed, 618 accidents were fatal. We have observed that, in the year 2022, in a period of 2 months, around 102 accidents have taken place. The data analytics predicts that, there would be 600 cases by end of the year 2022. This is same as the last year. By establishing the First Aid Medicine Vending Machine near the accidental prone areas we can reduce the non-fatal and fatal accidents by minimum 50-60% by providing the necessary treatment at the accidental spot itself.

- 40% of responses said that, the First Aid Medicine Vending Machine is necessary to establish in the accidental prone areas due to lack of availability of medical services in an emergency. Most of the responses, we have received have preferred to establish the vending machine nearer to the bus stop followed by metro stations which is 37.5% and 26.4% respectively. This project has analysed and provided insights to the implementing party such as social entrepreneurs, start-ups, government agencies about the potential of installing First Aid Medicine Vending Machine in the accident-prone areas and in the locations having less access to medicine. In the event of a mishap on parkways, driveways, isolated ranges, provincial territories, or other locations where therapeutic stores are not within the compass, First Aid Medicine Vending Machine will be incredibly important in saving lives.

The proposed project First Aid Medicine Vending Machine has the following features.

- It delivers the necessary things such as cotton balls, Dettol, Bandage cloth, Tinctures etc., needed after a minor accident and it ensures availability of first aid kit 24x7.
- It has a QR code, which can be scanned by the customers to make payments for the first aid medicines received.
- The machine would be capable of accepting paper notes and also access debit or credit cards.
- Provides the nearest hospital address and contact numbers on the machine.

The project proposal includes the following:

- Identified accident zones in Bangalore city to install First Aid Medicine Vending machines
- Providing Human Resource framework and strategies to implement the proposed plan
- Marketing strategy and promotional plan for greater awareness and attractiveness of consumers towards the usage of First Aid Medicine Vending Machine
- Cost analysis for the implementation of proposed project.

5. Limitations and Future Scope for Study

The present study is constrained to the geographical boundaries of Bangalore city only. Lack of awareness on how to use the first aid medicine vending machine is another limitation. The vending machine can be further installed near parks, malls, play grounds. Smart card facility will simplify transaction by elimination. Restoring Drug alert this feature will be useful in such a way that if a specific medicine is out of stock it will be notified. Selective hiring should hire people who add value to the organization can't just hire anyone for the job. Adding Sanitary Pads along with the First Aid Kit can be considered in the future, so that it will help any woman at emergencies.

References

- Bangalore mirror, Bangalore traffic police accidents - Search (bing.com). *The long wait: Trying times for accident victim's family.*, Accessed April, 25 2022. Feb 1, B.L.K.L.K. / U., 2022 .
Available at: <https://bangaloremirror.indiatimes.com/bangalore/others/the-long-wait-trying-times--accident-victims-family/articleshow/89256112.cms> Accessed April 24, 2022.
- Kulmukhanova, N., Daribay, A., Temirtayev, I. and Bassebek, U., ZhardEM Medicine Vending Machine. *International Conference on Computing and Network Communications (CoCoNet)* (pp. 108-113). IEEE, 2018.
- Nivedita, E.P. and Reddy, P.K. *When an ambulance driver stopped for dinner and never reached the patient, who died later.* [online] Citizen Matters, Bengaluru. 2022. Available at: <https://bengaluru.citizenmatters.in/when-an-ambulance-driver-stopped-for-dinner-and-never-reached-the-patient-who-died-later-76072>, 2022. Road Accidents -BENGALURU DISTRICT POLICE (karnataka.gov.in) DCP TRAFFIC EAST - Google My Maps //www.bangaloretrafficpolice.gov.in/Acintstats.aspx
- Steinfirt, J.L., Cowell, S.A., Presley, B.A. and Reifler, C.B., Vending machines and the self-care concept. *Journal of American College Health*, 34(1), pp.37-39, 1985.
- The New Indian Express., “Accident victim dies after waiting an hour for ambulance”. [online] Available at: <https://www.newindianexpress.com/cities/bengaluru/2017/jul/31/accident-victim-dies-after-waiting-an-hour-for-ambulance-1636071.html>, Accessed April, 24 2022.
- Usha, Y.G., Tiganibidari, S.C., Mangala, M.S., Rekha, T.B. and Shankara, M.R., Any Time Medicine (ATM) Vending Machine for Medicine Self-Dispensing, 2020.
- Vishnupriya, K. and Mamatha, N.P. Health automatic medicine vending machine. *Perspectives In Communication, Embedded-systems and Signal-processing- PiCES*, 2(10), pp.245-247, 2019.

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