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# A REAL TIME ELEVATOR IN METRO RAIL STATIONS

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Abstract: In our project a temporary elevator is designed to lift up the passenger from basement to the platform while and before train arrives. This project reduces the space occupied for constructing number of stairs. The elevator is designed with the help of hydraulic lifting principle and the driver circuit which drives the elevator. The train section is provided with transmitter and the Metrorail station platform with receiver. Normally the slider track will be open until train arrives at the platform and the signal for the passengers will be shown as GREEN indicating them to use the elevator. So that passengers can easily reach the platform. When the signal from the train provided with transmitter comes within the range the signal changes to ORANGE and a beep sound will be heard at the platform. When the train arrives very nearer to the station the signal received from RF is strong hence the signal has been changed to RED and the siren will be ringing loud around the station , which means that passengers should not use the elevator and the elevator automatically moves to its current position . Once the train crosses away the station, again the signal changes to GREEN and the same process mentioned above is carried out.

## I. INTRODUCTION

An embedded system is a special-purpose computer system designed to perform a dedicated function. Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or few pre-defined tasks, usually with very specific requirements. Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Embedded system comprises of both hardware and software. Embedded system is fast growing technology in various fields like industrial automation, home appliances, automobiles, aeronautics etc.

## II. EXISTING SYSTEM

### A. Ticketing:

The L&T Hyderabad project will have an automated ticketing system. But the security system is not provide in the ticketing system and also the ticketing system requires some planetary.

### B. Stations:

Hyderabad metro will have 64 stations in phase I. They will be provided with all kinds of escalators and elevators to reach the stations for passengers. Commercial will also be provided on stations. Hyderabad metro stations will also have service roads underneath them to provide last mile connectivity by allowing other public transportation systems use it for dropping/picking passenger's right in front of the stations and ensure uninterrupted traffic. Currently the service lane works are currently on at Nagole and Uppal stations. Otis Elevator Company of United States won the contract to supply and maintain 670 elevators.

### C. Initial Bidding:

The bidding process was completed by July 2008 and awarded to Maytas which failed to achieve financial closure for the project as per schedule by March 2009. In July 2009, the Andhra Pradesh Government canceled the contract and called for fresh bids for the project.

### D. Re-bidding:

In the July-2010 rebidding process, Larsen & Toubro (L&T) emerged as the lowest bidder for the ₹ 121.32 billion (US$1.8 billion) project. L&T came forward to take up the work for about ₹ 14.58 billion (US$210 million) as viability gap funding as against the sanctioned ₹ 48.53 billion (US$710 million).

## III. PROPOSED SYSTEM

### A. Ticketing:

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The project will have an automated ticketing system with features such as contactless smart card based ticketing, slim automatic gates, payment by cash and credit/debit card, passenger operated ticket vending machine and provision of common ticketing system. It will also have a provision of NFC-based technology to enable usage of mobile phones as fare media and high performance machine to avoid long queues. Samsung Data Systems India, a subsidiary of South Korean firm Samsung, has been awarded the automatic fare collection system package for the L&T metro rail project. The package involves design, manufacture, supply, installation, testing and commissioning of the system. For example, The Hyderabad metro rail project consists of following distances and fares.

| Distance (km) | Metro fare |
|---|---|
| 0-2 | Rs.8 |
| 6-10 | Rs.12 |
| 10-14 | Rs.14 |
| 14-18 | Rs.16 |
| >18 | Rs. 19 |

B. Track session:

The tracking session is more innovative in our project. This session is provided with the ability of moving the track by using moving block principle which has a current radio based with Communication-Base Train Control (CBTC). By organising this principle, the reality of the communication is produced in the field.

C. Stations:

In our project, we will have stations in phase I. They will be provided with all kinds of amenities such as elevators to reach the stations, announcement boards, electronic display systems among others for passengers. Commercial will also be provided on stations. Chennai metro stations will also have service roads underneath them to provide last mile connectivity by allowing other public transportation systems use it for dropping/picking passenger's right in front of the stations and ensure uninterrupted traffic Applo Elevator Company in chennai is ready to the construct to supply and maintain the elevators.

D. Elevators:

In our project, we use Roped hydraulic elevators, which uses both above ground cylinders and a rope system, allowing the elevator to travel further than the piston has to move. The hydraulic elevators is low mechanical complexity in comparison to traction elevators that makes them ideal for low rise, low traffic installation. The hydraulic elevator is constructed with typical modern securities, like overload sensor, which triggers a buzzer alarm indicating inability until some passengers are unloaded, door open and close buttons, an elevator telephone, hold button, call cancellation.

E. CBTC Technology:

The Metro Rail contract to provide Communication-Base Train Control (CBTC) and included telecommunications and supervision systems on all three lines. This will supply its CBTC technology, and trains will firstly run in automatic train operation mode with minimum headways of 90 seconds, although the system will support ultimate migration to unattended train operation (UTO).

## IV. BLOCK DIAGRAM:

A. Transmitting Section:

The transmitting section is placed in the train where it gives the signal about the arrival and departure of the train. In transmitting section power is drained from solar panel. Arm 11 processor is used to meet the growing demands of the future generation.Arm11 processor is also proven to be successful in real time applications.Arm11 processor is encoded using c program and compiled using keil software. In our project we use zigbee transmitter because it has longer transmission. The figure 1.1 shows the transmitting session.

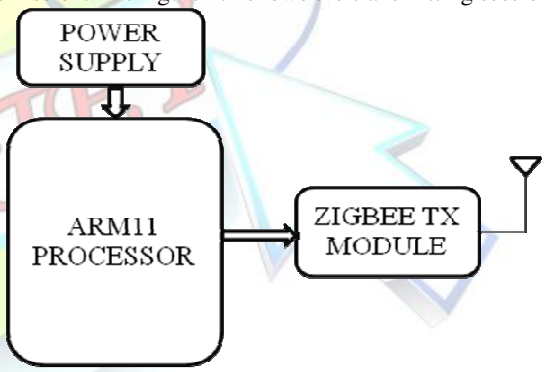


Fig.1.1.Transmission Section

B. Receiver Section:

The receiver section is placed in the base station , it indicates the arrival and departure of the train. Here too the power is drained from the solar panel. The zigbee receiver receives the signal from the zigbee transmitter and sends the signal to the base station. In the receiver section the arm11 proceesor is decoded using c program and is compiled using keil software and the signal is sent to the driver circuit . Arm11 processor controls both the traffic light controller and alarm. When the light goes green the driver circuit drives the hydraulic elevator upward and helps the passengers to reach the platform. When the light goes red the driver circuit stops the hydraulic elevator in its current position. Once the passenger reaches the platform the stepper motor helps the hydraulic elevator to

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reach its original position. The figure 1.2 shows the receiving session.

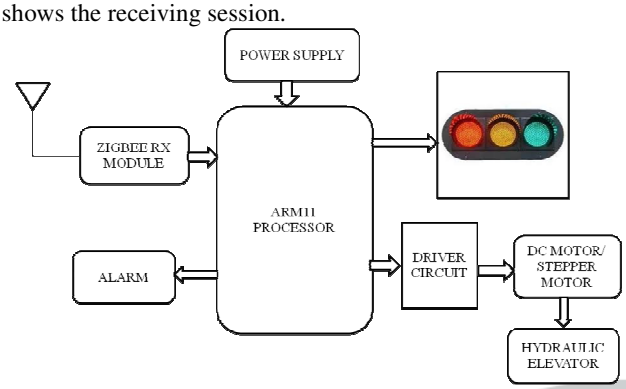


Fig.1.2Receiver Section

## V. CONSTRUCTION

The concessionaire started the pillar creation on the same day for Stage-I and Stage-II. The work for Corridor 2 will been delayed due to track moving session demanding the realignment to safeguard the old age passenger and to implement the transmission session. The space and cost required for construction in proposed system is less compared to existing system.

## VI. ACKNOWLEDGEMENT

I am **R.V.Vighnesh**, hereby certifying that the in order furnish in the proposal form from article 1-3 is factual, absolute and most excellent of my knowledge. The application had been screened and evaluated at confined level to give fine points.

## VII. CONCLUSION

Our project concludes that the area of construction is reduced and the security system is provided in the ticketing method. By reducing the area of construction, the traffics can be reduced in the metro cities. This project is more useful for the old people and also for the handicapped person. By introducing this product, our country shows the future enhanced development.

## VIII. REFERENCE

1. Automatic train control and communications for Washington Metro Greenway, J.P.; Sheldon, R.Communications Society Year: 1974, Volume: 12, Issue:6 Pages:14-21, DOI: 10.1109/MCOMD.1974.1088881.
2. Hyderabad andSecunderabad, the erstwhile Andhra Pradesh Government and the South Central Railway zone jointly launched the Multi Modal Transport System (MMTS) in August 2003.
3. "Metro rail projects: Four new metro men and their challenges". The Times of India. 18 December 2011.
4. "L&T set to bag Rs 12,132-cr Hyderabad metro rail project". The Hindu. 14 July 2010. Retrieved 2010-05-17.
5. "EPC vs PPP in metro rail". Projectsmonitor.com. 2007-12-02. Retrieved 2013-04-18.
6. "Rs.4, 500-crore MMTS project report under way". Business Standard (Hyderabad). February 15, 2004. Retrieved May 18, 2015.
7. "Nod for metro rail project". The Hindu (Hyderabad). Oct 27, 2003. Retrieved May 18, 2015.
8. "Commuters fume over erratic MMTS train schedule". The Hindu (Hyderabad). December 13, 2012. Retrieved May 18, 2015.
9. http://www.railjournal.com/index.php/metros/hyderabad-metro-set-for-2014-opening.html
10. "DeccanChronicle.com metro-among-100-global-projects". Metro-among-100-global-projects.
11. http://m.thehindu.com/news/cities/Hyderabad/lt-metro-rail-hyd-bags-sap-award/article7968483.ece
12. "L&T metro rail schedule on track". The Hindu (Chennai, India). 7 June 2012.
13. "Metro Rail works picking up speed". The Deccan Chronicle. 31 August 2011. Retrieved 2011-08-31.
14. "Hyderabad Metro Rail phase-I to be completed by 2014". NDTV.com. 2013-01-21. Retrieved 2013-04-18.
15. "Hyderabad Metro rail stage I to be flagged off by June 2014-BusinessLine".Thehindubusinessline.com. Retrieved 2013-04-18.
16. "Hyderabad Metro Rail Project will be completed by 2017: Andhra Pradesh government". NDTV.com. 2012-08-08. Retrieved 2013-04-18.

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## IX. EXTERNAL LINK

1. Hyderabad Metro Rail Ltd.
2. CSIR Research Center (Structural Engineering Research Center) in Chennai.
3. Hyderabad Metro Rail Information & Images.
4. L&T Metro Rail Hyderabad.