Degrees of social status are closely linked to health inequalities. Those with poor health tend to fall into poverty and the poor tend to have poor health. According to the World Health Organization, within countries those of lower socioeconomic strata have the worst health outcomes. Health also appears to have a strong social component linking it to education and access to information. In terms of health, poverty includes low income, low education, social exclusion and environmental decay. The poor within most countries are trapped in a cycle in which poverty breeds ill health and ill health breeds poverty.

Any Time Medicine Vending Machine is although not a new concept in its entirety, it could prove to be useful and hence important in developing countries like India where healthcare is utmost critical.
§ **Academia approach towards projects...**
- Short-term
- Theory oriented
- Lacks application approach
- Real-life utility is often ignored

§ **What happened at idea-presentation competition?**
- Own / others’ ideas were presented
- Only theory...No PoC!

§ **Why is this being presented here?**
- As a learning experience for academic community
- New idea and application of theoretical concepts
- For community support in development
- Sponsorship, if any
§ **Why was that initiated**

- To support development of an idea / project that is technically feasible and also applicable to real world.
- Converting abstract ideas into meaningful block diagrams and working applications.

§ **What does it cover**

- Technical support in terms of resources, designs.
- Development modules for experiments.
- Hands-on support for industrial modules.
- Supply of open-source hardware as well as software.

§ **What it doesn’t cover**

- Blatant outsourcing.
- Full financial assistance.
- Labor support.
- Proprietary knowledge and information.
§ What are the common problems?

- Too many people in India die due to lack of diagnosis in first place, availability of medicine in time or in affordable cost as second.
- Problem aggravates when need of some medicine is urgent and drug-stores are not open or drug is not available in stock. Esp. during night times.
- In remote areas, rural areas and places where public turnover is less, this is critical issue to have medicine availability within the patient’s reach.

§ How ATMVM can address those?

- The idea is that people would be able to access the drugs via patient kiosks in public places such as drug stores, malls, bus / railway stations, areas where medical stores are limited, on highways, etc.
- Drugs (esp. OTC types) can be made available in affordable rates.
- Regular replenishment can help in not only tracking usage pattern and thus taking precautionary measures but also ensure availability of drugs 24x7, and hence the name Any Time Medicine...
- First aid can be available easily due to availability of ATMVMs in public places.
Block Diagram

GSM Link

Data Card

Inventory Controller

Display & Keypad

Camera, Mic. & Speaker

CPU

Cash Inlet

Credit Card Reader

Mini-Printer

Medicine Dispenser

# Primary block diagram
Any person, intending to utilize the ATMVM will go through following steps...

- Input his personal identification ID (such as PAN No., Aadhar No., Passport No. or similar)
- Select the medicine needed.
- ATMVM will search through inventory & database to verify identification, create logs and check for availability, etc.
- If all-well, machine will display the amount to be paid to complete the purchase.
- User will pay with cash or credit / debit card.
- Machine then will dispense the medicine.
- Transaction is complete.

Besides select-pay-collection mechanism, various other modules would keep the machine in healthy condition and would make sure that nothing is going wrong...
§ **What kind of drugs will this machine vend?**

- OTC drugs
- Certain prescription drugs
- Consumables
- First-aid products
Critical Modules

§ Camera & microphone input
- Camera module is critical to identification process in case of previous offenders / black-listings, etc.
- In case of an illiterate or disabled users, keypad and display may not be of full use. Using microphone to analyze oral commands would be important.
- However, illiteracy of users can be overcome by use of properly designed GUI though.

§ Cash collector and credit / debit card reader
- Correctly accepting coins, currency notes, credit cards and debit cards would be vital.
- Rejection of incorrect & short-value transactions, fake coins / notes, etc. is important.

§ Inventory controller
- Controlling the inventory of drugs is critical to functioning of machine. Not only from low inventory levels but also from misuse or theft cases.
- GSM link would enable inventory controller to keep tab on inventory at regular intervals and report it to the control rooms. That way, replenishment is easy and the tracking too.
§ Done so far...

- Since last couple of months, the idea has been converted from abstract concept to block diagram level.
- Similar available machines are being studied.

§ Planned next...

- Prospective customer survey / study has been planned in order to understand Indian users for such a machine.
- Block diagram would be detailed out for each block and module development would be started.
- Legal, medical and administrative aspects would be studied for feasibility study and further changes in design.

§ What are hurdles?

- Funds
- Timely resource availability & formation of think-tank team
Next Steps

§ Making it open-source-development project for various modules
  ▪ The project will soon be launched as an open-source project in order to involve more engineering and science academia.
  ▪ Open-source-development would also enable the project progress swiftly and finish within time.

§ Backers / sponsors & co-developers invited
  ▪ Do let us know, if you...
    o Wish to be part of open-source-development team (as an academy or an individual)
    o Can contribute financially
    o Can support for other tasks such as legal & administrative support, customer study, etc.
    o Have any suggestions or ideas to contribute to this work
Introduction to Project Concept of
Any Time Medicine Vending Machine

© 2013 – Knewron

Knewron is technology knowledge service firm working in niche service areas of techno-managerial business solutions, intelligent embedded systems, new process design, process re-engineering, analytics, research, product prototype, design & development, corporate trainings and end-to-end customized solutions in various business domains to fit client’s business demands.

Knewron®
contact@knewron.co.in
Website: www.knewron.co.in