EVM Demonstration
at ECP Islamabad on Dec 31, 2013

1. **List of Companies offered Embedded EVM System**

a) TIP 03 Units(Control and verification, Ballot and Printing units). Verification is based on CNIC and Bio – Metric.

b) KRL w/o Bio – metric authentication

c) COMSATS 04 Units but no production facilities and repair centers.

Advantages

- Easily transportable and no complexity for usage by the election staff and voter.
- 100 % Secure , no hang-up , no virus and no hacking etc
- Low cost locally designed product

2. **List of Companies offered PC based EVM**

a) Secure Tech	**b)** Indra Spain (international
c) NESCOM Islamabad	**d)** Smart Metic Netherland (international)
e) NIE Islamabad	

Drawbacks

- Require Operating system.
- Complex / sensitive to transport and usage by the election staff and voter.
- High expanses for PC and OS.
- Always on a risk for hang-up / virus / hack etc

3. **Why TIP is MOST suitable for EVM production**

- Infrastructure for electronic Product manufacturing
  TIP is serving have the full capacity for any kind electronic product manufacturing Fully equipped with the state of the art electronic manufacturing product infrastructure and also have country wide repair centers.

- Current EVM prototype is THT based however, after the approval of EVM , SMT based production model will be designed / delivered.

- Technical Advantages.
  EVM is purely indigenously developed by TIP and will be produced in a local organization. Future enhancements will be made without any additional cost of TOT etc.

- Financial Advantages
  Saving of national exchequer in form the foreign exchange.

- Economic Advantages
  Employment generation in the community.

- Social Advantages
  Security of public information retrieved from the NADRA database.

Electronic Voting Machine (EVM)

Designed and Developed by

Telephone Industries of Pakistan

1. **e-voting.**

   Electronic voting is often seen as a tool for making the electoral process more efficient and for increasing trust in its management. Properly implemented, e-voting solutions can increase the security of the ballot, speed up the processing of results and make voting easier

2. **Requirements of a secure election:**

Completeness:	All voters are counted correctly.
Soundness:	A dishonest voter cannot disrupt voting
Privacy:	All votes must be secret
Unreusability:	No voter can vote twice
Eligibility:	No one who isn't allowed to vote can vote
Fairness:	Nothing must affect the voting
Verifiability:	No one can falsify the result of voting.

3. Strengths associated with e-voting

a) Cost Effective

Potential long-term cost savings through savings in poll worker time, and reduced costs for the production and distribution of ballot papers.

b) Fraud Prevention

Prevention of fraud in polling stations and during the transmission and tabulation of results by reducing human intervention. Unlike the ballot papers system where a bogus voter can stuff bogus ballot papers inside the ballot box. EVM will provide the trails to locate the bogus votes

c) Easy to Use

Increased convenience for voters. EVM is easy to use than the existing system especially for the less educated person.

d) Portable

Its easy to transport compared to the existing system containing the numerous accessories etc.

e) Reduced invalid votes

There is no chance of any invalid vote as in the existing system due to the improper folding of ballot papers , multiple stamps etc.

f) Fast vote casting / results

With the EVM the procedure of vote casting and vote counting / result preparation is extremely fast and reliable.

4. Development of EVM by TIP

Electronic Voting Machine (EVM) designed by TIP consist of following three modules / units. All the four units will be connected each other through cable.

a) Control Unit and verification unit

The control unit is operated by only Presiding officer. It is necessary to initialize the EVM for the polling at the start of polling by the presiding officer under the given procedure.

For the verification of the voter this unit also consists upon the CNIC card reader and bio-metric device which is finger print module.

b) Ballot Unit

Board consisting an array of buttons (16 at present and can be modified according to the further requirements) with the place holders for the candidates symbol and names. Voter is supposed to press one of these buttons to vote for the candidate of his choice. An LED as visual indicator and a beep as audio is used to give voter feedback / confirmation for the successful vote casting.

c) **Printing unit**

A thermal printer is connected with the control unit in a secure box, can be sealed / unsealed according to the demand.

- Unit will print the pre polling result sheet in front polling agents.
- During the polling it will print the vote casted so that at the end of the day polled votes can be counted, if required.
- At the closure of polling result of polling will be printed.

5. Compliance with ECP Specifications:

- Facilitates to produce prompt result,
- Reduced vote casting time.
- Provision for invalid votes or abstention added as per ECP specification.
- Provides paper audit trail.
- Re-usable by simply erasing previous data.
- Can be used for less educated voters.

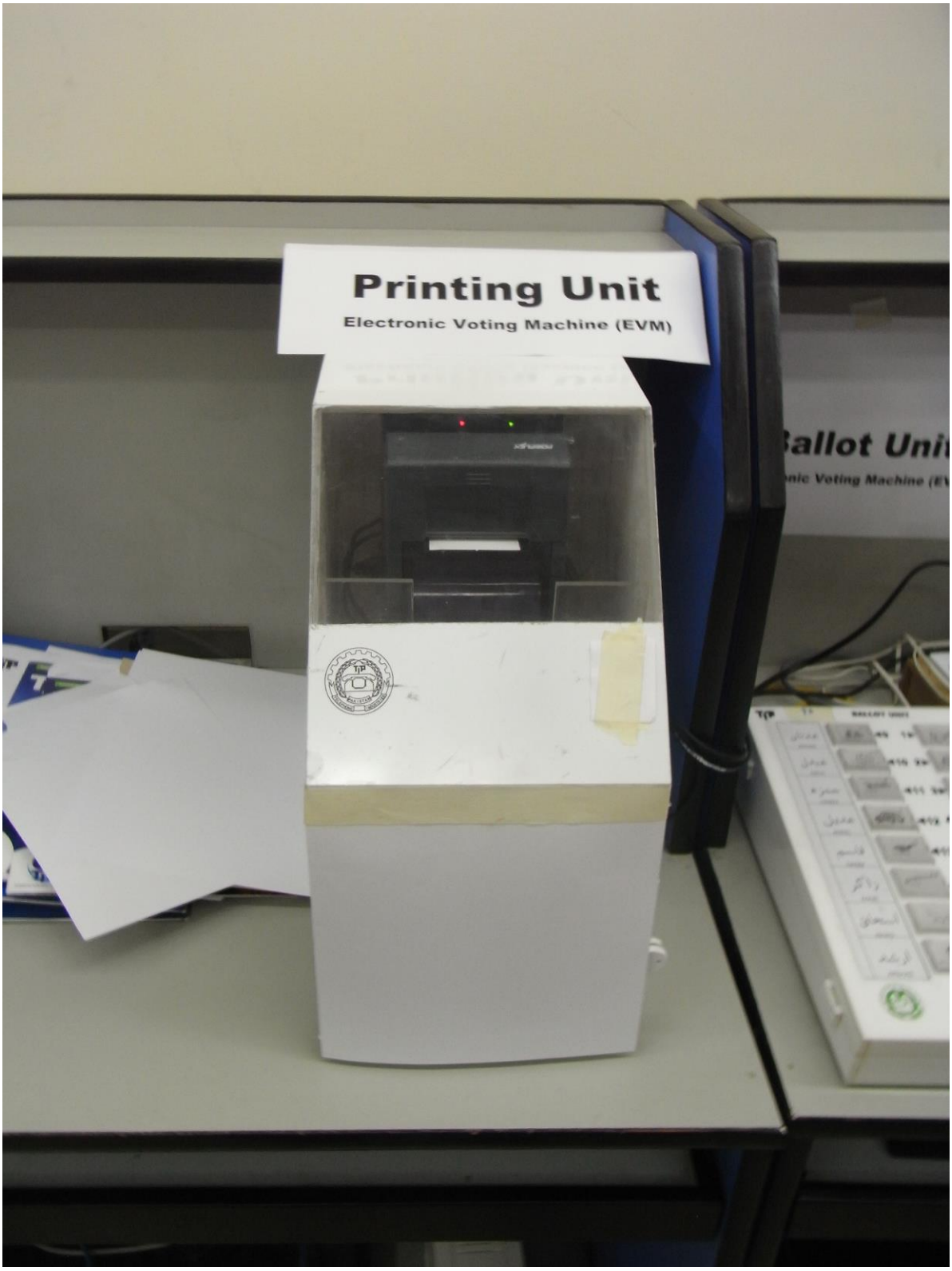
- Easy to install & operate.
- Minimum and easy initialization and setting at polling station level.
- Rugged design: can withstand harsh operating climate.

6. Salient features / specifications

- Ease of use and robustness in hardware and integrity of software is the key consideration.
- Larger LCD Display with convenient detailed readouts and Paper audit trail added to the ballot Box replacement unit to ensure audit ability.
- Developed on the ECP principles of simplicity, standalone operation and cost effectiveness tailored to Pakistani election environment.
- Verification thru CNIC and Bio metric system by using finger print
- GPS module for longitude and latitude coordinates
- Real time clock module.
- QR code on each Vote (QR code will consist upon : Constituency Name ,Polling Station name , GPS Coordinate (Latitude , longitude) Date and time , Candidate Name ,Election Symbol of candidate and Machine Id No etc)
- Results through SMS (Returning officer , Prov Hrq and ECP etc) and paper
- Works on Mains Power and supported by special battery power pack which support for 18 hrs
- Modular design
- Tested in real environment in Multan Bye Elections in 2012
- EVM can handle 16 candidates and can be increased up to 128 candidates each for National and Provincial Assembly simultaneously,
- Based on state-of-the –art microprocessor with ‘burnt-in’ software code which cannot be altered or retrieved
- No access to any programmable or non-programmable components.
- Non-volatile dual redundant memory chip that retains data till its removal.
- Low cost and No hang up/ virus free solution
- Audio and visual indicators for each action.
- Counter for the total vote casted

Demonstration of EVM at
Election Commission of Pakistan Islamabad
on Dec 31, 2013


Printing Unit
Ballot Unit
Control Unit


Printing Unit
Electronic Voting Machine (EVM)


Printing Unit