

Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

EIGHTEENTH CONGRESS
Second Regular Session

House Bill No. 7929



Introduced by Representative PABLO JOHN F. GARCIA

EXPLANATORY NOTE

The Philippines is a democratic and republican State.¹ Sovereignty resides in the people and all government authority emanates from them.² Elections are the ultimate expression of sovereignty.

Former Chief Justice Reynato Puno described the electoral process in this manner³:

The electoral process is one of the linchpins of a democratic and republican framework because it is through the act of voting that government by consent is secured. Through the ballot, people express their will on the defining issues of the day and they are able to choose their leaders in accordance with the fundamental principle of representative democracy that the people should elect whom they please to govern them. Voting has an important instrumental value in preserving the viability of constitutional democracy. It has traditionally been taken as a prime indicator of democratic participation.

In general, suffrage may be exercised by all citizens of the Philippines⁴ and it is the objective of the State to pursue the holding of free, orderly, honest, peaceful, and credible elections.⁵ Congress is also mandated to provide a system for securing the secrecy and sanctity of the ballot.⁶

The advent of smartphones and mobile applications has changed the world forever. Statista, a German statistics company, reports that the Philippines had around 36.35 million smartphone users as of September 2019⁷—a little more than one smartphone for every three Filipinos. We Are Social and Hootsuite, social network and media companies based in London and Vancouver respectively, also report that for 2018 “[i]n the Philippines, time spent online

¹ Const. art. II, § 1.

² *Id.*

³ *Dissenting*, Tolentino v. Comm'n on Elections, G.R. No. 148334 (2004).

⁴ Const. art. V, § 1.

⁵ See Const. art. IX C., § 4.

⁶ Const. art. V, § 2.

⁷ Available at <https://www.statista.com/statistics/748053/worldwide-top-countries-smartphone-users/>.

daily soared [x x x] to 10 hours and 2 minutes this year, the highest in the world.”⁸ It is also interesting to note that social media penetration among Filipinos is at 99% of internet users and that we also spend the most time on social media at 4 hours and 12 minutes per day.⁹ “Fixed internet speed grew from 15.19 Mbps [on] average to 19 Mbps.”¹⁰

In contrast, however, voter turnouts show that participation in elections has not been as widespread¹¹:

Year of Elections	Turnout
2007	73.10%
2010	74.99%
2013	77.31%
2016	81.95%
2019	75.90%

One in four Filipinos has not been able to exercise their right to vote.

This bill seeks to enable the full expression of the electoral process by allowing citizens to opt in and vote using a smartphone application for future electoral exercises. The system will complement the current arrangements available to the Commission on Elections and the voting public.

Electronic voting systems have been around for some time¹² and the Philippines saw its first automated elections just around a decade ago. Electronic voting has shown its benefits. In India, “[i]ntroduction of [electronic voting machines] led to a significant decline in electoral frauds [x x x] [and] strengthened the weaker and the vulnerable sections of the society [x x x]”.¹³ For example in Brazil, “[e]stimates [x x x] indicate that electronic voting reduced residual (error-ridden and uncouned) votes and promoted a large de facto enfranchisement of mainly less educated citizens.”¹⁴

⁸ Gelo Gonzales, *Filipinos spend most time online, on social media worldwide – report*, available at <https://www.rappler.com/technology/news/222407-philippines-online-use-2019-hootsuite-we-are-social-report>.

⁹ *Id.*

¹⁰ *Id.*

¹¹ Addie Pobre, *IN NUMBERS: How PH voted in last two midterm elections*, available at <https://www.rappler.com/newsbreak/iq/voter-turnout-elections-philippines> (28 March 2019). Philippine Center for Investigative Journalism, *Data analysis of votes, voters, and winners*, available at <https://pcij.org/article/3034/data-analysis-votes-voters-and-winners> (13 May 2019) for the year 2019.

¹² See Britannica, ProCon.org, *Historical Timeline, Electronic Voting Machines and Related Voting Technology*, available at <https://votingmachines.procon.org/historical-timeline/>.

¹³ Sisir Debnath et al., *The Impact of Electronic Voting Machines on Electoral Frauds, Democracy, and Development*, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3041197 (2017).

¹⁴ Thomas Fujiwara, *Voting Technology, Political Responsiveness, and Infant Health: Evidence From Brazil*, available at <https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA11520>.

While electronic voting systems have not always been perfect, it is more crucial in a democracy to bridge the gap in voter involvement, especially in the face of pandemics such as COVID-19 where physical participation is discouraged, especially for the elderly and the immunologically vulnerable. This bill eases the load on the current system and further provides voters with greater isolation from external pressures and threats.

Cutting-edge cybersecurity mechanisms and tools such as end-to-end verification, risk-limiting audits, encryption, biometrics, secure channel technologies, blockchains, and future technologies will address vulnerability concerns.

The Constitution declares that “[s]cience and technology are essential for national development and progress” and mandates the State to “give priority to research and development, invention, innovation, and their utilization [x x x].”¹⁵ This bill embodies seeks to give expression to these constitutional ideals to provide greater access to the ultimate expression of democracy.

The urgent passage of this bill is earnestly sought.



Rep. PABLO JOHN F. GARCIA
3rd District, Province of Cebu

¹⁵ Const. art. XIV, § 10.

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Introduced by Representative PABLO JOHN F. GARCIA

AN ACT
AUTHORIZING THE COMMISSION ON ELECTIONS TO USE A
COMPLEMENTARY SMARTPHONE VOTING APPLICATION SYSTEM FOR THE
NATIONAL AND LOCAL ELECTORAL EXERCISES, PROVIDING FUNDS
THEREFOR AND FOR OTHER PURPOSES

Be it enacted by the House of Representatives and the Senate of the Congress of the Philippines in session assembled:

Section 1. *Short Title.* - This Act shall be known as the "Smartphone Voting Act of 2020".

Section 2. *Declaration of Policy.* - It is policy of the State to ensure free, orderly, honest, peaceful, credible and informed elections, plebiscites, referenda, initiatives, recall and other similar electoral exercises by improving on the election process and adopting systems including the use of a smartphone application that ensures the secrecy and sanctity of the ballot as well as all election, consolidation, and transmission documents in order that the process remains transparent and trusted and that the results shall be fast, accurate, and reflective of the genuine will of the people, who must always be empowered to be able to exercise their right of suffrage. The State recognizes the mandate and authority of the Commission to prescribe the adoption and use of the most suitable technology of demonstrated capability taking into account the situation prevailing in the area and the funds available for the purpose. The State shall, finally, ensure that all available state-of-the-art and well-researched methodologies and technologies are used in harmony to achieve the goal of enabling Filipinos the fullest expression of their democratic will.

Section 3. Definition of Terms. - For purposes of this Act, the following terms shall be defined as follows:

(a) *Biometrics* is a field of science that uses computer technology to identify people based on physical or behavioral characteristics;

(b) *Blockchains* are tamper evident and tamper resistant digital database ledgers implemented in a distributed or decentralized fashion and which enable a community of users to record or audit transactions in a shared ledger within that community, such that under normal operations, no transaction can be changed once published;

(c) *Cybersecurity* refers to the collection of tools, policies, risk management approaches, actions, training, best practices, assurance and technologies that can be used to protect digital environments and assets;

(d) A *Denial of Service* attack is an assault on a network by which a user or organization is deprived of the services of a resource they would normally expect to have;

(e) *Encryption* refers to the cryptographic process of transforming electronic information into a scrambled form which can only be read by authorized persons or entities which know how to translate the code using algorithms, keys, passwords, and other data protection tools;

(f) *End-to-End Verification* or end-to-end verifiability is the process or quality of a voting system which enables voters to verify that (without needing to trust a separate entity to do so on their behalf):

(i) his or her choice was correctly denoted on the ballot by the system and thus was cast as intended or that he or she must be able to confirm that the vote was cast correctly;

(ii) his or her ballot was received the way it was cast or recorded as cast or that he or she must be able to check that the system included their votes in the final tally; and

(iii) his or her ballot counts as received or is tallied as recorded or that he or she is able to count the recorded votes and double-check the announced outcome of the election;

(g) *Malware*, or malicious software, consists of programming designed to disrupt or deny operation, gather information that leads to loss of privacy or exploitation, gain unauthorized access to system resources, and/or other abusive behavior. Malware interferes with normal computer functions or sends personal data about the user to unauthorized parties over the Internet.

Malware includes computer viruses, worms, Trojan horses, spyware, browser hijackers, and dialers;

(h) *Risk-Limiting Audits* are election accuracy audits that operate transparently and dynamically by examining individual randomly selected ballots until sufficient statistical assurance is obtained while making certain privacy is not compromised. This statistical assurance ensures that the chance that an incorrect reported outcome escapes detection and correction is less than a predetermined risk limit;

(i) A *Secure Channel*, in cryptography, is a way of transferring data free from overhearing, manipulation, or tampering;

(j) A *Smartphone* is a mobile telephone or telecommunications device with many features of a computer included in its functions. A smartphone is required to have a camera, facial recognition, fingerprint recognition, and internet connection capabilities for purposes of this Act; and

(k) *White Hat Hackers* are computer security experts who specialize in penetration testing and in other testing methodologies that ensure the security of an information system. Black hat hackers, in contrast, are those with malicious or criminal intent.

Section 4. Authority and Mandate to use a Smartphone Voting System. - To carry out the declared policies in Section 2, the Commission on Elections ("Commission"), is hereby authorized and mandated to use, on an opt-in basis for voters, a Smartphone Voting Application System ("System") for future electoral exercises, in such manner as the Commission may deem appropriate and practical for the process of voting, counting of votes and canvassing or consolidation, the transmission of results, or any part of any electoral exercise. This System shall complement existing voting systems and arrangements currently being used by the Commission.

The Commission is hereby authorized to procure by purchase, lease, or otherwise any supplies, software, licenses, applications, equipment, materials, and other services needed for the holding of these electoral exercises and to achieve the purposes of this Act.

Section 5. Advisory Council. - The Commission shall create an Advisory Council ("Council") which shall be convened not later than two (2) months after the effectivity of this Act.

The Council shall be composed of the following members, who must be registered Filipino voters, of known independence, competence, and probity:

(a) The Secretary of Information and Communications Technology, who shall act as the Chairperson of the Council;

(b) One (1) representative from the Department of Science and Technology;

(c) One (1) representative from the Department of Education;

(d) One (1) representative from the National Privacy Commission;

(e) One (1) representative from the Philippine Statistics Authority;

(f) One (1) representative from the Department of Computer Science, University of the Philippines-Diliman;

(g) Three (3) members representing professional cybersecurity or information communications technology ("ICT") organizations to be selected by the chairperson of the Council from among the list of nominees submitted by Philippines-based ICT professional organizations. Nominees shall be individuals, at least one of whom shall be experienced in managing or implementing large-scale information technology projects; and

(h) Three (3) members representing non-governmental electoral reform organizations, to be selected by the chairperson of the Council from among the list of nominees submitted by the country's non-governmental electoral reform organizations.

A person who is affiliated with any political party or candidate for any national position, or is related to a candidate for any national position by affinity or consanguinity within the fourth civil degree, shall not be eligible for appointment or designation to the Council. Should any such situation arise at any time during the incumbency of a member, the designation or appointment of that member shall *ipso facto* be terminated.

Any member of the Council is prohibited from engaging, directly or indirectly, with any entity that advocates, markets, imports, produces or in any manner handles software, hardware, or any equipment that may be used for election purposes for personal gain.

Any violation of the two immediate preceding paragraphs shall disqualify said member from the Council and shall be penalized in accordance with Republic Act No. 3019, otherwise known as the Anti-Graft and Corrupt Practices Act, and/or other related laws.

The Council may avail itself of the expertise and services of local or international resource persons who are of known independence, competence and probity, are nonpartisan, and do not possess any of the disqualifications applicable to a member of the Council as provided herein. The resource persons shall also be subject to the same prohibitions and penalties as the members of the Council.

Section 6. *Functions of the Advisory Council.* - The Council shall have the following functions:

(a) Recommend the most appropriate, secure, applicable and cost-effective software, hardware, infrastructure, services, and technologies to be applied for the use of Filipino voters regarding the System;

(b) Participate as non-voting members of the Bids and Awards Committee in the conduct of the bidding process for anything deemed necessary for the System. Members of the Council representing ICT professional organizations are hereby excluded from participating in any manner in the Bids and Awards Committee;

(c) Participate as non-voting members of the steering committee to be created by the Commission tasked with the implementation of the System. Members of the Council representing ICT professional organizations are hereby excluded from participating in any manner in the steering committee;

(d) Provide advice and assistance in the review of the System's planning, inception, development, testing, operationalization, and evaluation stages. For this purpose, the Council may employ programs such handing out bounties to white hat hackers that discover bugs and vulnerabilities in the System;

(e) Provide advice and/or assistance in the identification, assessment and resolution of the System's problems or inadequacies as may surface or resurface in the course of the bidding, acquisition, testing, operationalization, re-use, storage, or disposition of System equipment and/or resources as the case may be;

(f) Provided advice and/or assistance in the risk management of the System especially when a contingency or disaster situation arises;

(g) Prepare and submit a written report, which shall be submitted within six months from the date of the election to the Commission and the Congressional Oversight Committee, constituted hereunder, regarding the use

and as a technical evaluation of the System. The necessary recommendations in areas where there is need for legislative action shall be included in this report.

The Council shall be dissolved after the submission of the written report described herein, unless later reconstituted by the Commission for whatever purpose in the furtherance of the objectives of this Act and its declared policies.

Nothing in the roles of the Council or any outside intervention or influence shall be construed as an abdication or diminution of the Commission's authority and responsibility for the effective development, management, and implementation of the System and the provisions of this Act.

The Council shall be entitled to a just and reasonable amount of *per diem* allowances and/or honoraria to cover the expenses of the services rendered chargeable against the budget of the Commission.

Section 7. Qualities Required of the System. - The System shall adhere to the following standards:

- (a) Accuracy – The System should record the votes correctly;
- (b) Auditability – There should be reliable and demonstrably authentic election records. The System should provide a mechanism for an audit trail which can help to verify that the votes are accounted for correctly in the tally and that overall security is maintained;
- (c) Authentication – Only the eligible and valid voters can vote through the System;
- (d) Certifiability – The System should be testable against essential criteria;
- (e) Confidentiality – The System must ensure that votes are only received by the intended recipient;
- (f) Cost-effectiveness – The System should be affordable, efficient, and provide the best value for the money spent;
- (g) Flexibility – The System should allow for a variety of ballot question formats suitable for any electoral exercise;
- (h) Integrity – Votes should not be able to be modified, manipulated, faked, or deleted without detection;

(i) Multiple Language Accessibility – Voters should be able to use the System using any of the major languages of the Philippines;

(j) Non-coercibility – Voters should not be able to prove how they voted;

(k) Privacy and Secrecy – No person or entity should be able to determine how any individual voted;

(l) Reliability – The System should work robustly, even in the face of numerous difficulties;

(m) Security – The System must be impregnable from adversaries such as nation-state actors, black hat hackers, terrorists, criminals, insiders, and partisan or politically-motivated groups and/or individuals and the like;

(n) Transparency – Voters should be able to possess a general understanding of the whole process. Voters should clearly understand the mechanism of the System and know whether their votes have been correctly inputted and counted;

(o) Uniqueness – No voter should be able to vote more than once;

(p) Usability and Intelligibility – Voters must find the System intuitive and user-friendly; and

(q) Verifiability – Voters should receive proof that their selections have been included, unmodified, in the final tallying of all collected ballots.

For this purpose, the Commission and the Council shall adopt state-of-the-art cybersecurity and cryptographic techniques, methods, and technologies such as but not limited to biometrics, blockchains, end-to-end verification, end-to-end encryption, risk-limiting audits, secure channel technology usage, and mechanisms which resist or prevent malware, denial-of-service attacks, and any security threat in all phases, parts, and components of the System's processes.

Section 8. *Philippine Identification System Integration.* - The Philippine Identification System, as established by Republic Act No. 11055, and its components such as the "PhilID", shall be integrated with the System and shall form as the basis for registering and/or authenticating the identity of a particular voter for purposes of using the System and to ensure security and privacy.

This Section is without prejudice to any other voter registration requirement and/or process the Commission may impose. Existing voter registration and eligibility systems may be integrated with the System.

Section 9. *Process of Voting using the System.* - Without prejudice to whatever modifications, improvements, and/or adjustments the Commission may prescribe, after due consultations with the Council, in observation of the provisions of this Act and in pursuit of its declared policies, the following are the steps in voting using a smartphone application via the System:

(a) Application Registration and Logging-in:

(i) The voter, after opting in to use the System, shall download the Commission-approved smartphone application with which to vote and which detects if the voter's smartphone has been compromised by any malware. The detection and presence of malware or any other unauthorised software, as the Commission may prescribe in the Implementing Rules and Regulations, shall disallow the voter from casting any vote through his or her smartphone unless such malware or unauthorised software is removed.

(ii) The voter shall then log-in and register with the application via inputting his or her email, mobile phone number, and a subsequent one-time-password text verification code.

(iii) The voter shall then choose a password and/or fingerprint validation before being allowed access to the main application screen.

(b) Voter Identity Verification and Authentication:

(i) The voter shall then take picture(s) of his or her PhilID using the application and shall pair his or her password and/or fingerprint verification with biometrics such as but not limited to a picture of his or her face and/or a recording of his or her voice.

(ii) Once paired and after the voter's identity shall have been verified by the System, any identifying information regarding the voter shall be expunged.

(c) Voting Proper:

(i) Once authenticated, the voter shall then choose which active electoral exercise is available for his or her lawful participation and shall cast his or her vote(s). Voters shall be

promptly notified if they have selected erroneously (e.g. accidentally selecting two candidates for the same position).

(ii) The voter may review and thereby change his or her choices before submission. Votes shall not be submitted unless the voter re-confirms his or her identity using the paired password and/or fingerprint validation or other such biometric identifier.

(iii) After submission, the voter may change his or her vote before the close of the electoral process, subject to such reasonable regulations that the Commission may prescribe.

(d) Verification:

(i) The Voter shall then receive an anonymized and encrypted receipt which assures him or her that his or her vote(s) was/were sent and tabulated unmodified.

(ii) This receipt shall assist in any auditing process without unreasonably prejudicing the privacy and secrecy of the voter.

(iii) The receipt shall be designed to self-delete after being accessed by the voter.

(e) Integration:

(i) Votes cast via the System shall then be added to the tallies of the other methods currently in use by the Commission.

Section 10. Information and Education Campaign. - The Commission shall, not later than six (6) months before the actual use of the System, undertake a widespread voter information and education program, through mass media such as the internet, newsprint, radio, television, and the like, as well as through seminars, symposia, fora and other nontraditional means, to educate the public and fully inform the electorate about the System and to inculcate the values declared in Section 2. The Commission shall also educate the public about possible election offenses and penalties when violating the integrity of the System by referencing *Batas Pambansa Blg. 881*, as amended, otherwise known as the "Omnibus Election Code of the Philippines", and other election laws such as but not limited to Republic Act No. 8436, as amended by Republic Act No. 9369.

Section 11. Appropriations. - The amount needed for the initial implementation of this Act shall be taken from the current fiscal year's appropriation of the Commission and the other government agencies and institutions mentioned in the Council. Thereafter, the amounts needed for the proper fulfillment of this Act shall be included in the annual General Appropriations Act.

Section 12. *Implementing Rules and Regulations.* - The Commission and Council shall convene within within thirty (30) days from the latter's first convention as provided for in Section 5 and shall promulgate the necessary implementing rules and regulations within three (3) months thereafter.

Section 13. *Joint Congressional Oversight Committee.* - There is hereby created a joint congressional oversight committee to monitor the implementation of this Act. The committee shall be composed of five (5) senators and five (5) representatives to be appointed by the Senate President and the Speaker of the House of Representatives, respectively. The majority and minority parties shall, as far as practicable, be equally represented in the committee. The oversight committee shall be co-chaired by a senator and a representative designated by the Senate President and the Speaker of the House of Representatives, respectively.

The oversight committee shall conduct a comprehensive assessment and evaluation of the performance of the System and shall make appropriate recommendations to Congress.

The mandate given to the joint congressional oversight committee under this Act shall be without prejudice to the performance of the duties and functions by the respective existing oversight committees of the Senate and the House of Representatives.

Section 14. *Applicability.* - The provisions of *Batas Pambansa Blg. 881*, as amended, otherwise known as the "Omnibus Election Code of the Philippines", and other election laws, such as but not limited to Republic Act No. 8436, as amended by Republic Act No. 9369, not inconsistent with this Act, shall apply.

The penal provisions of such laws, as amended, shall also apply accordingly.

Section 15. *Repealing Clause.* - All other laws, decrees executive order, rules and regulations, or parts or provisions thereof which are not affected shall continue to remain in full force and effect.

Section 16. *Separability Clause.* - If any part or provision of this Act is held unconstitutional or invalid, other parts or provisions thereof which are not affected shall continue to remain in full force and effect.

Section 17. *Effectivity.* - This Act shall take effect fifteen (15) days following completion of its publication in at least two (2) newspapers of general circulation.

Approved,