Supporting Information

An integrated smartphone-based genetic analyzer for qualitative and quantitative pathogen detection

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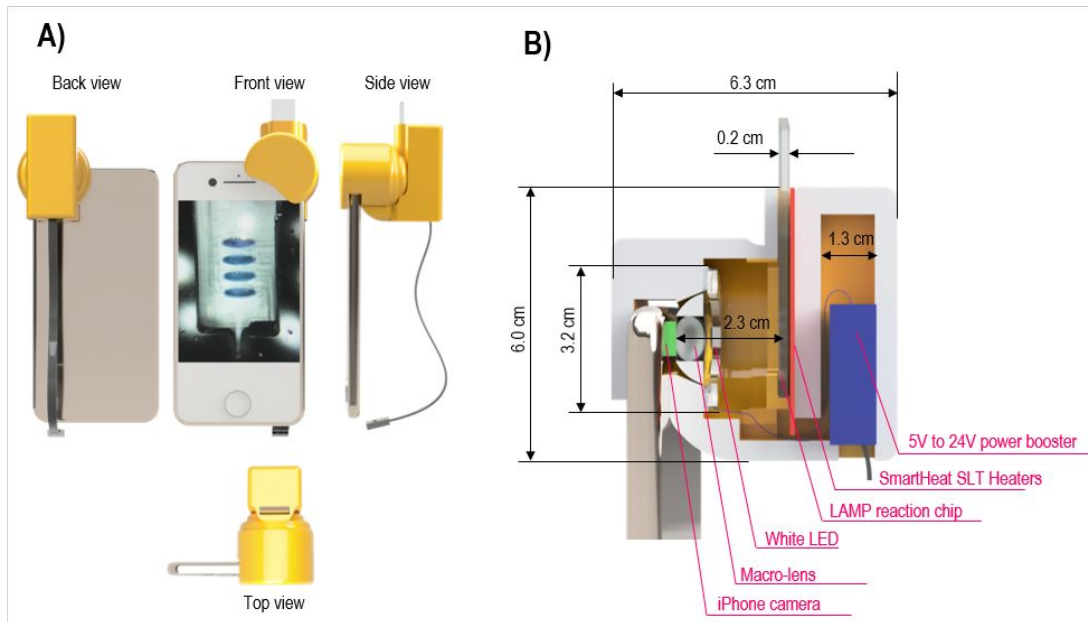E-mail address: feiliu@wmu.edu.cn; seots@khu.ac.kr; Phone: +82-31-201-3676; Fax: +82-31-204-8114

Figure. S1. (A) The integrated smartphone-based genetic analyzer with different view, and (B) the cross-sectional schematics to show the structure inside the i-Gene.

Table S1. Primer sequence information for the LAMP reaction.

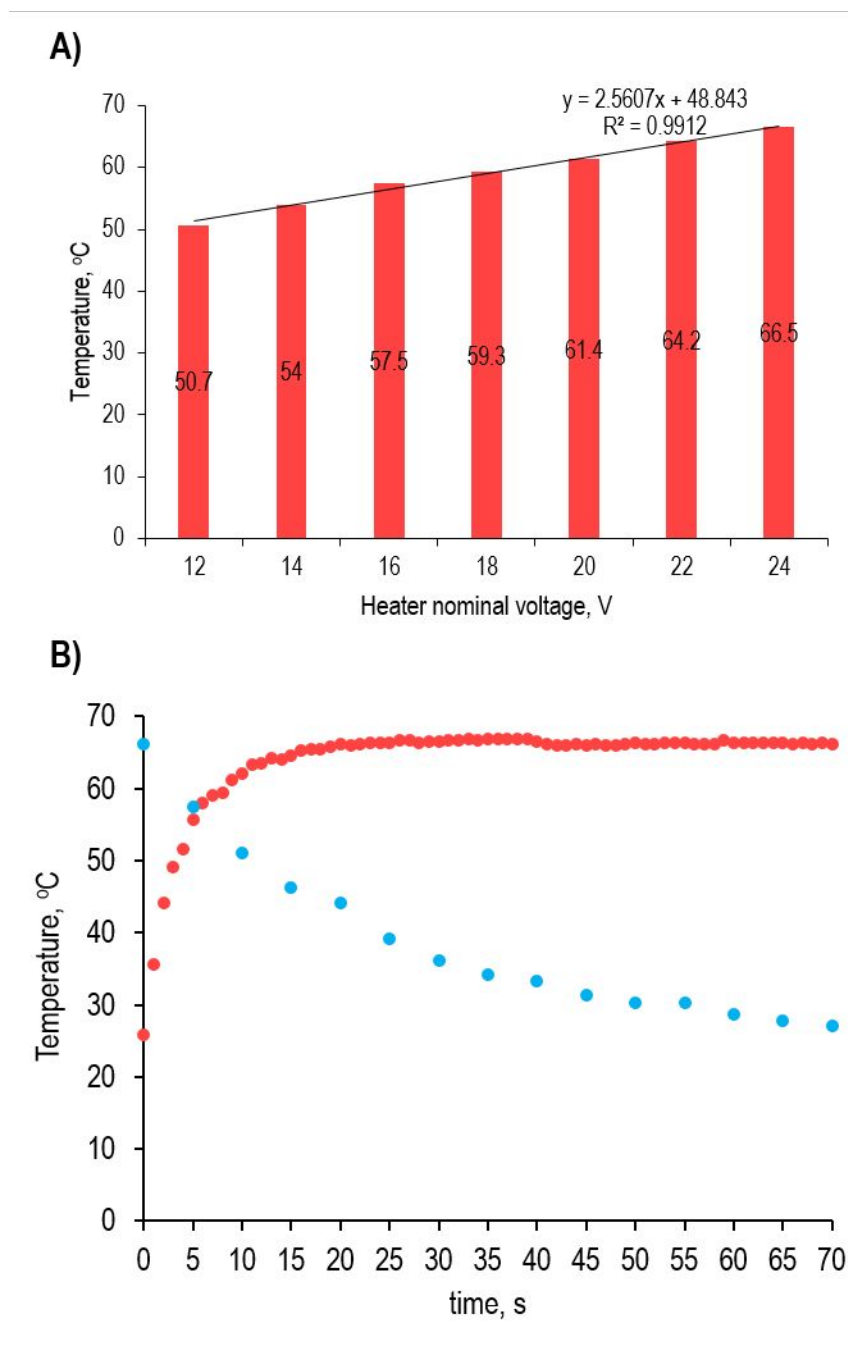| Target gene / Accession #	Primer	Sequence (5' to 3')	Length [bp]
E. coli O157:H7 fliC gene (CP002967.1 : 2147323-2149017)	FIP	CTACCAACCTGTCTGAAGCGCATC GACATGTTGGACACTTCG	42
	BIP	GGTGACTGCGGAATCCAGACGTGA GGCAATTGCATCCATCG	41
	F3	GCCTGCTGGATGATCTGC	18
	B3	CGGCTCTGCAACCAAAGA	18
S. Typhimurium invA gene (M90846.1)	FIP	TCCGCGACACGTTCTGAACCCTCT ATTGTCACCGTGGTCC	40
	BIP	TGCCGATTTGAAGGCCGGTACAGT ACGCTTCGCCGTTC	38
	F3	GCGGTGGGTTTTGTTGTCT	19
	B3	CGTAAAGCTGGCTTTCCCTT	20
V. parahaemolyticus toxR gene (L11929.1)	FIP	TCGACTCCACATTCACTCGATTACT GATAACTTGCCAGACG	41
	BIP	CCTGCCGAATGGCGATTACAATTA ATTGTCGATTCAGCCG	40
	F3	CAACCATGGTGACTGTGA	18
	B3	CCAGCGACCTTTCTCTGA	18

Figure. S2. (A) Temperature profile according to the nominal voltage, and (B) the heating and cooling profiles of the heater.
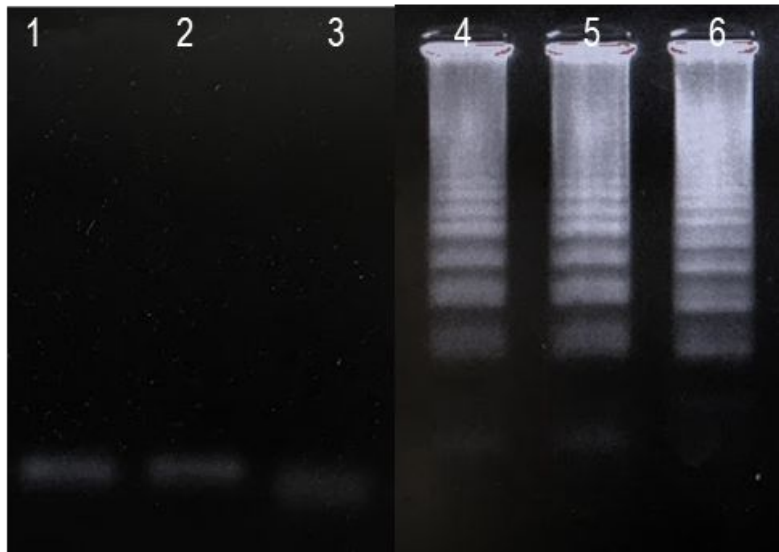
Figure. S3. Gel electrophoresis results of the (1) and (4): a negative and positive control of *E. coli* O157:H7; (2) and (5): a negative and positive control of *S. Typhimurium*; (3) and (6): a negative and positive control of *V. parahaemolyticus*.

Table S2. The cost of each component and the overall cost of the i-Gene.

No	Component	Company	Amount	Cost/AE, USD	Total, USD
1	1.5 cm close-up smartphone camera macro lens	Shanghai SKINA Digital Technology, China	1	14.1	14.1
2	6000K white LED	Tongyifang, China	8	0.4	3.0
3	SmartHeat SLT Thin-Film Heaters	Minco, USA	1	91.0	91.0
4	MicroUSB Boost Type DC-DC Variable Converter	Tuozhanteng Hong Kong Technology, China	1	2.5	2.5
5	ABS resin for 3D printing platform	Cubicon, Korea	60 g	65.0 USD/500g	7.8
	Total				118.3