

Supplementary Information

Article title: A smart toilet for home monitoring in patients with ulcerative colitis: an exploratory pilot study

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Authors: L.R. Hazeleger, V. Verbiest, A. Steijlen, J. Hamers, A. van Kraaij, E. Wentink, M. Duijvestein

Corresponding author: L.R. Hazeleger (lotte.hazeleger@radboudumc.nl)

This supplementary file includes additional tables, figures and plots regarding the smart toilet system, its feasibility and validity, and additional information on study participants.

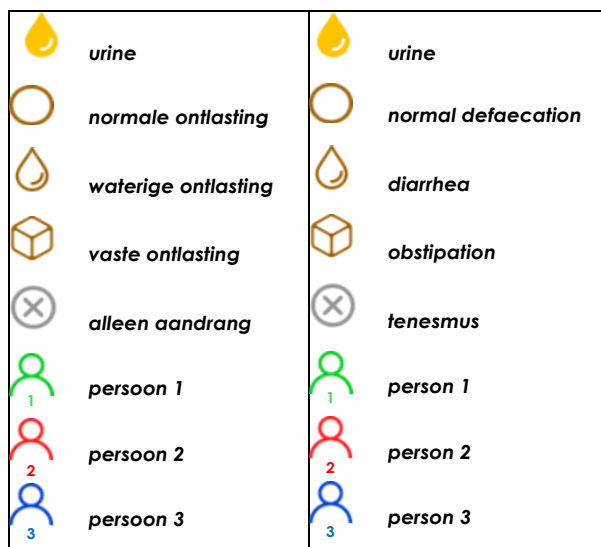


Figure S1: Remote buttons of the smart toilet system in Dutch (left) and English translation (right)

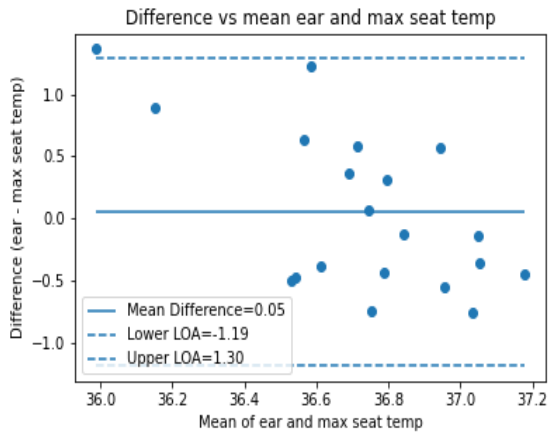


Figure S2: Bland Altman analysis of smart toilet temperature compared to ear temperature

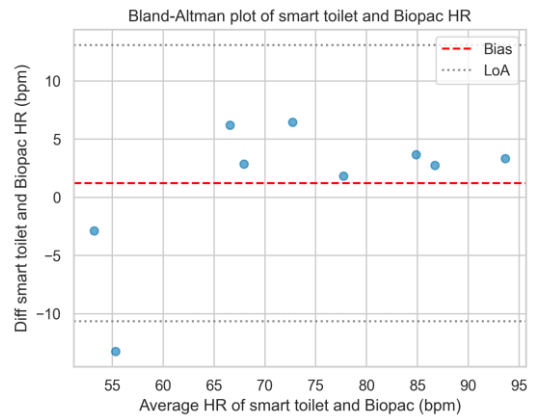


Figure S2: Bland Altman analysis of smart toilet heart rate compared to Biopac HR

Table S1: Identified and hypothesized reasons for inaccurate temperature recordings with the Melexis MLX90640AA sensor incorporated in the smart toilet

Identified reasons for inaccuracy	Hypothesized reasons for inaccuracy
Clothing	Ambient temperature
User sitting position + sensor accuracy (see Figure S)	User movement
Dirty sensor	Body surface area
	Ambient humidity

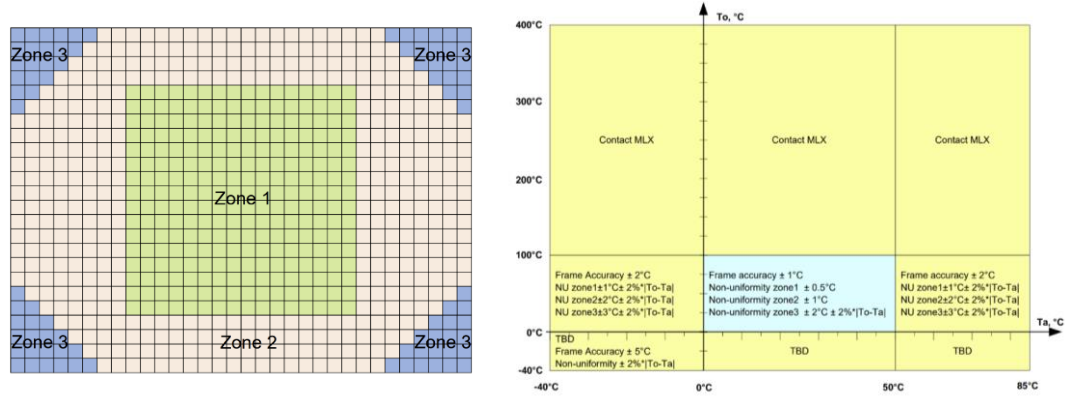


Figure S4 Accuracy zones (left) and absolute temperature accuracy (right) of the temperature sensor [from Melexis MLX90640AA Datasheet]

Table S2: Induction treatment regimen per patient

Pt	Induction therapy (start week)
1	Rectal corticosteroids (0), filgotinib (2)
2	Oral (0) and rectal (2) corticosteroids, mesalamine (0), vedolizumab (3)
3	Filgotinib (0)
4	Rectal corticosteroids (0), upadacitinib (1)
5	Upadacitinib (0)
6	Ustekinumab (1)
7	Oral corticosteroids (1), azathioprine (4)
8	Vedolizumab (3)

Table S3: Nature of visits to the smart toilet as indicated by patients

Patient	Defaecation					
	Total	Miction	All	Normal	Soft	Hard
1	200	74	126	122	4	0
2	282	264	84	21	65	43
3	243	155	94	78	7	9
4	353	339	27	24	2	2
5	198	122	57	44	9	5
6	285	231	60	1	58	2
7	44	1	3	0	1	2
8	130	31	26	17	7	2

Table S4: Availability of good-quality ECG recordings as determined by SQI model

Patient	Good quality ECG recordings		
	Recorded smart toilet visits	N	%
1	200	167	84
2	282	215	76
3	243	179	74
4	353	285	81
5	198	121	61
6	285	209	73
7	44	10	23
8	130	107	82

UC: ulcerative colitis; ECG: electrocardiogram

Table S5: Availability of temperature recordings with the smart toilet

Patient	Recorded smart toilet visits	Temperature measurements	
		N	%
1	200	161	81
2	282	237	84
3	243	99	41
4	353	92	26
5	198	113	57
6	285	198	69
7	44	26	59
8	130	109	84

UC: ulcerative colitis ECG: electrocardiogram