

1: Reduce Cube Testing

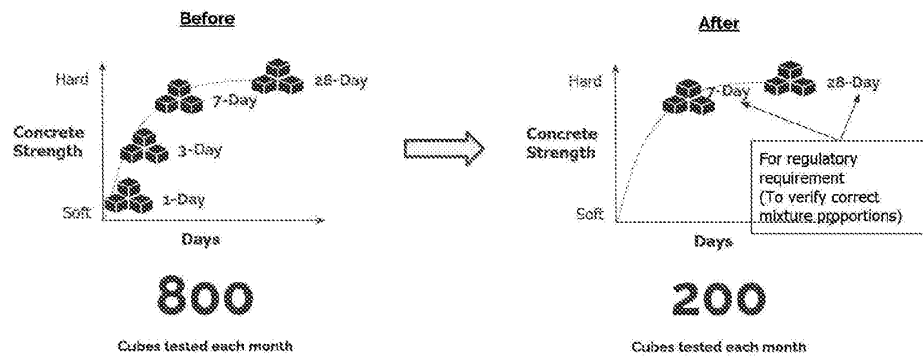


FIG. 1

2: Reduce Construction Cycle Time

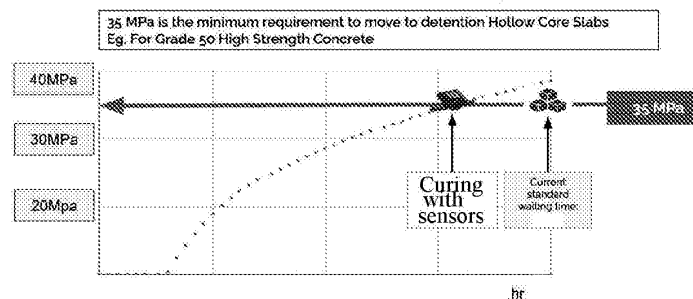


FIG. 2

3. Continuous monitoring of health of concrete structure

- strength (strain-stress, any deterioration)
- corrosion
- vibration
- maintenance (such as, water seepage)
- relative humidity

FIG. 3

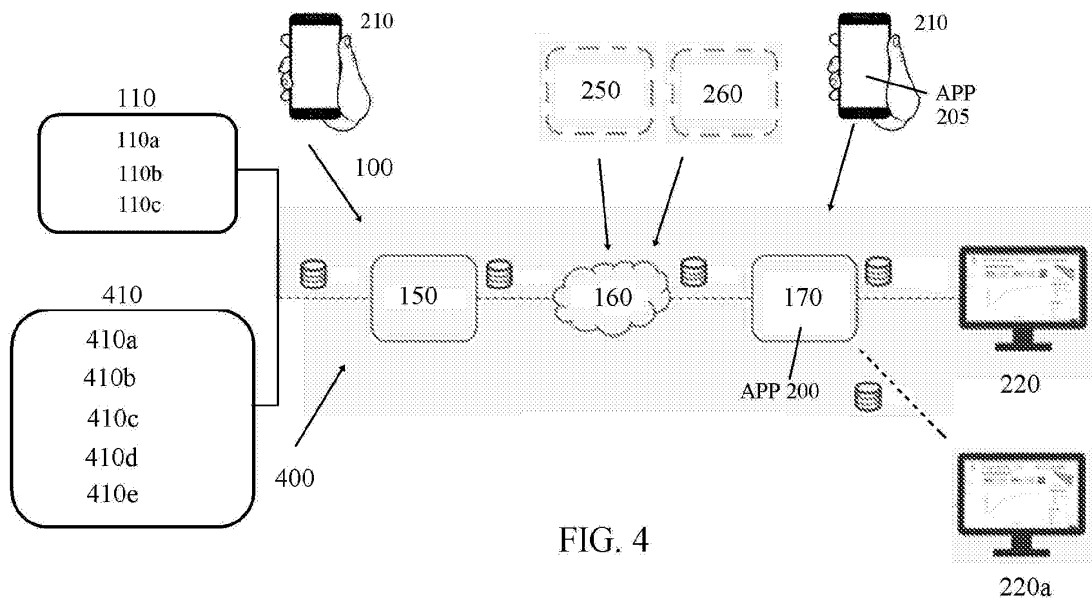


FIG. 4

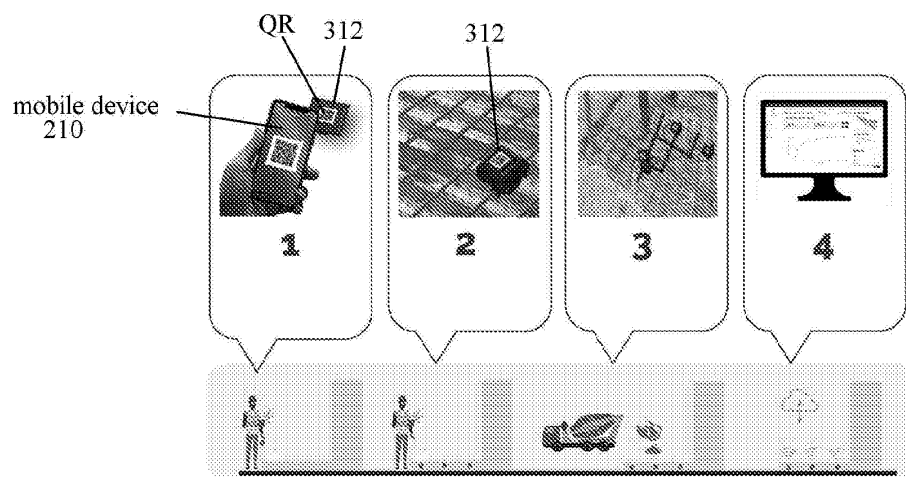


FIG. 5

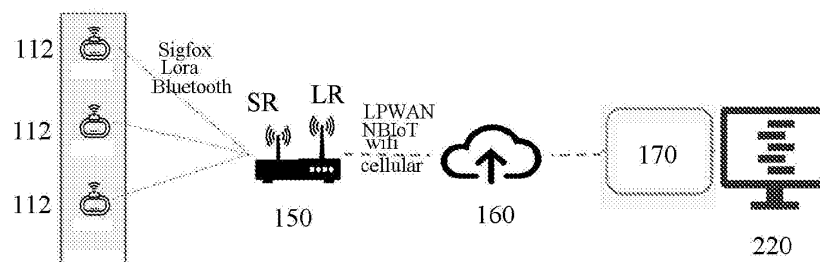
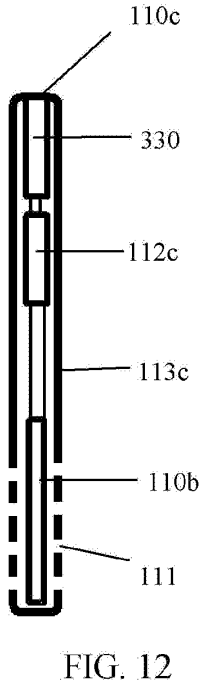
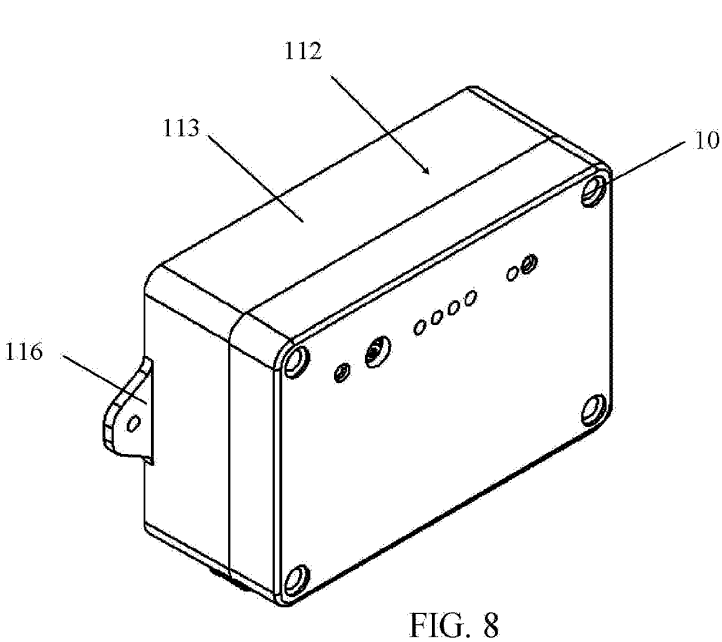
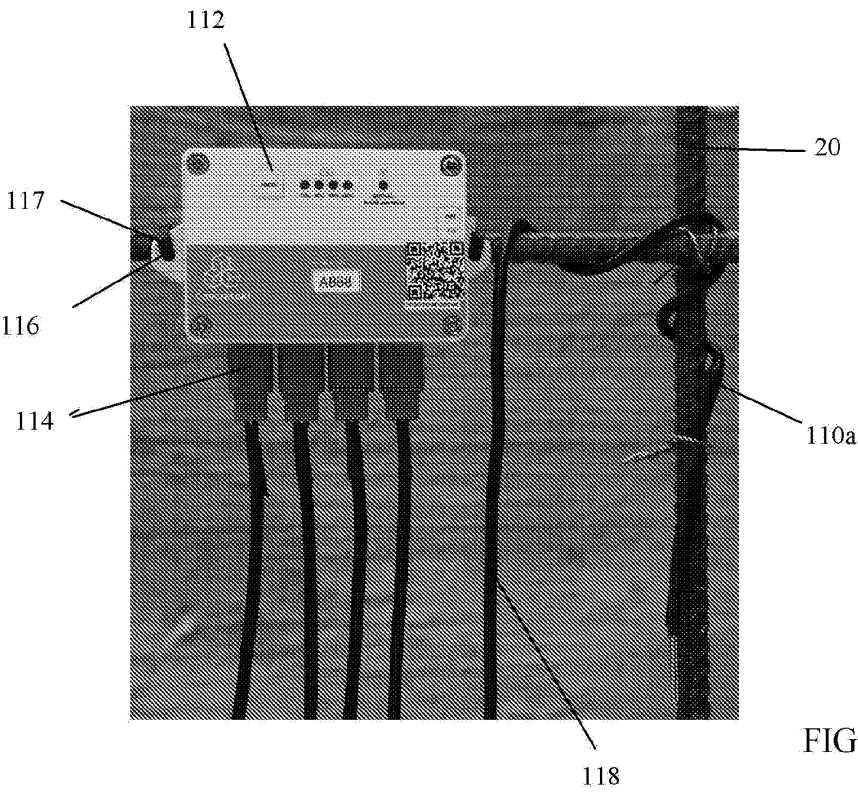


FIG. 6



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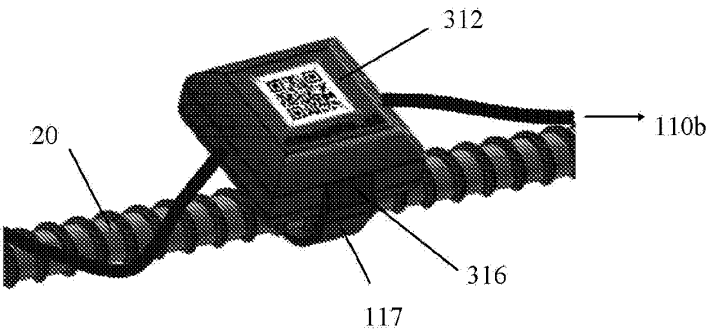


FIG. 9

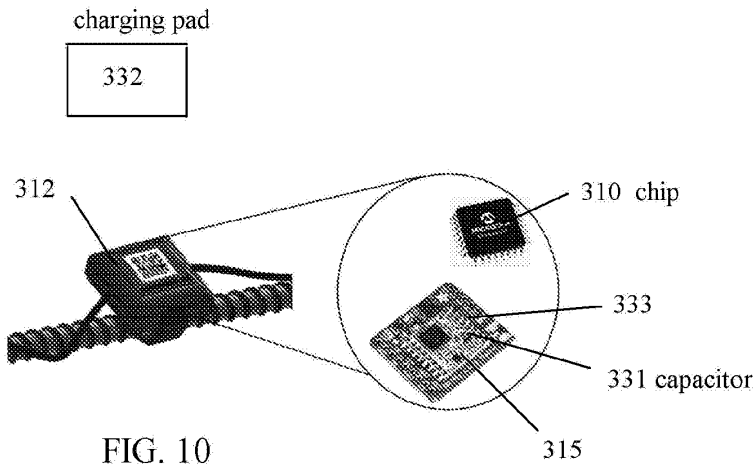


FIG. 10

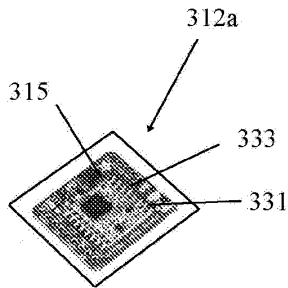


FIG. 11

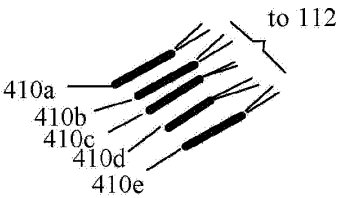


FIG. 13

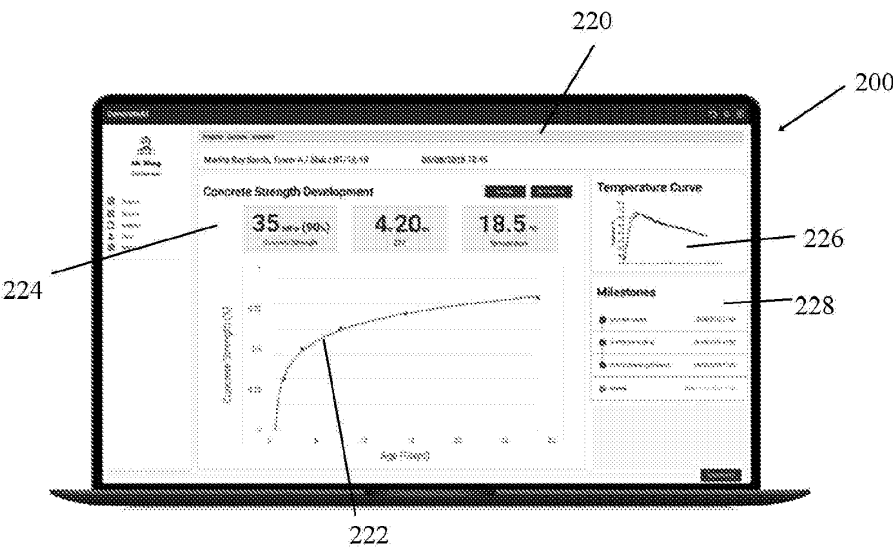


FIG. 14

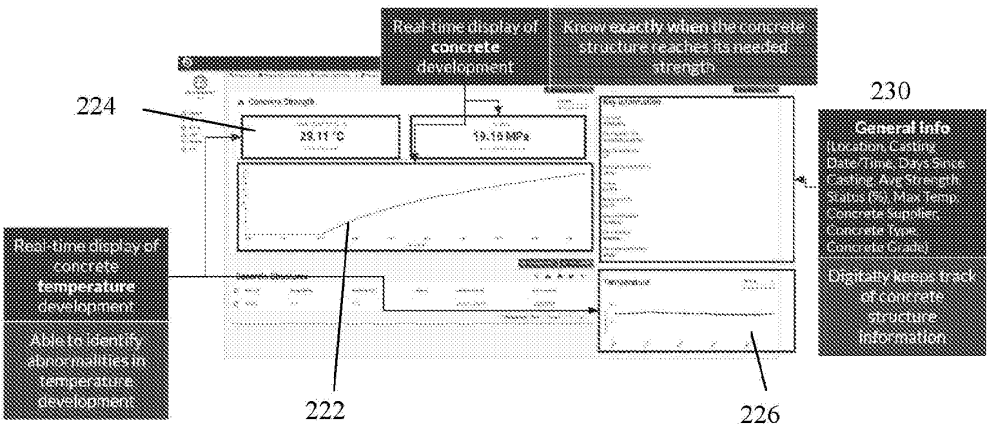


FIG. 15

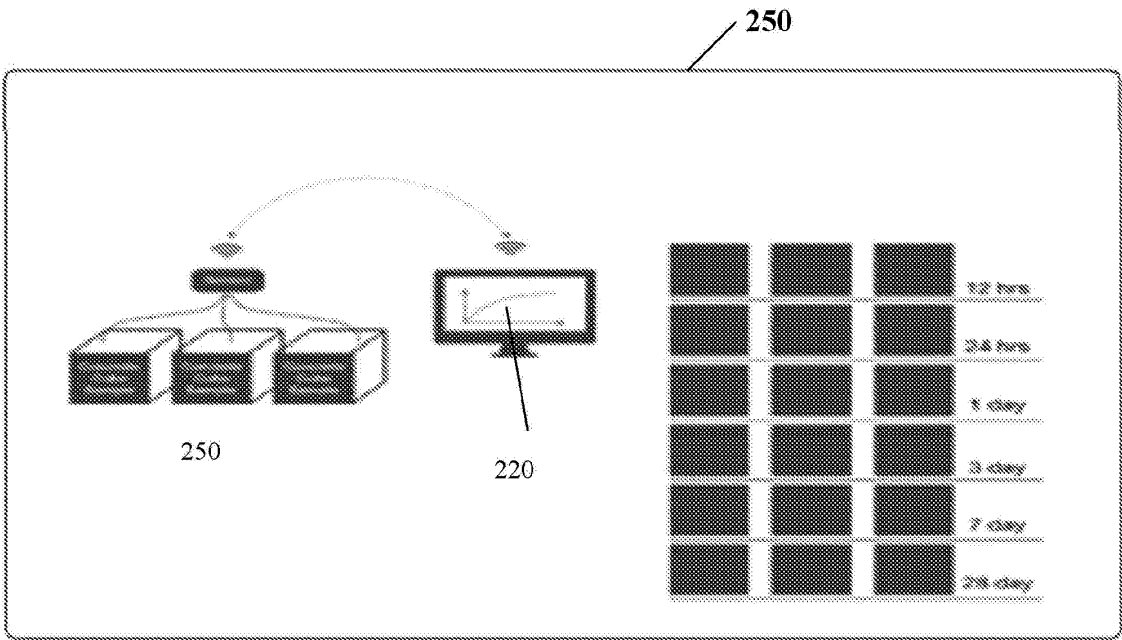


FIG. 16

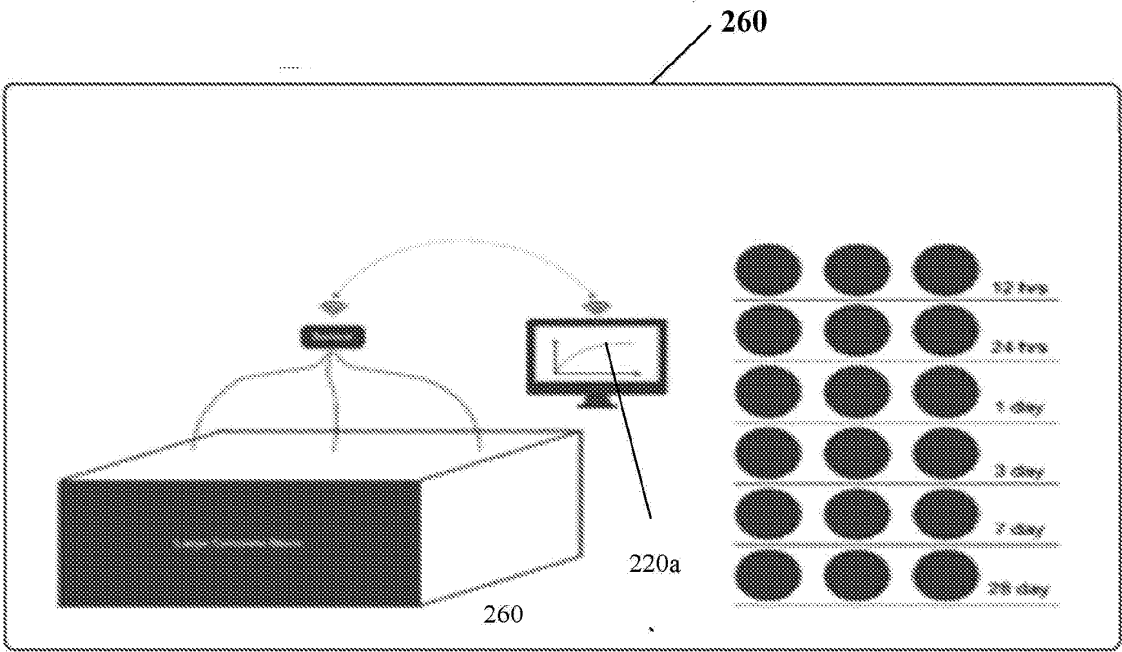


FIG. 17

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Recipe 1 (Grade 30, Vapour room at 28 degC)			
Time Stamp	Cube (MPa)	Invention (MPa)	Error Rate
16hr	11.30	11.28	0%
19hr	12.66	12.13	4%
21hr	13.18	12.71	4%
24hr	14.76	14.27	3%
3 day	24.52	22.34	9%
7 day	31.32	28.48	9%
14 day	35.55	33.60	5%
28 day	39.40	38.75	2%

FIG. 18

Recipe 1 (Grade 30, Vapour room at 40 degC)			
Time Stamp	Cube (MPa)	Invention (MPa)	Error Rate
16hr	11.00	11.64	6%
19hr	11.45	12.45	9%
21hr	11.89	13.18	11%
24hr	13.48	13.96	4%
3 day	24.03	22.93	5%
7 day	30.06	28.98	4%
14 day	32.05	34.25	7%
28 day	35.50	39.28	11%

FIG. 19

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Recipe 2 (Grade 40MPa, Vapour room at 28 degC)			
Time Stamp	Cube (MPa)	Invention (MPa)	Error Rate
19hr	25.55	28.05	10%
21hr	24.73	28.89	6%
24hr	28.68	30.04	5%
3 day	41.47	39.75	4%
7 day	52.08	47.87	8%
14 day	57.24	55.06	4%
28 day	60.83	61.11	0%

FIG. 20

Recipe 2 (Grade 40MPa, Vapour room at 28 degC)			
Time Stamp	Cube (MPa)	Invention (MPa)	Error Rate
19hr	-	-	-
21hr	-	-	-
24hr	31.47	31.41	0%
3 day	45.41	39.35	13%
7 day	53.74	51.83	4%
14 day	54.22	59.37	10%
28 day	62.73	65.40	4%

FIG. 21

Recipe 3:

Time	Recipe 3 (Grade 50MPa, Vapour room at 28 degC)		
	Cube	Invention	Error Rate
0.625 (15h)	9.50	9.92	-1.16%
0.75 (18h)	12.12	11.98	-5.13%
0.875 (21h)	15.63	14.82	-6.57%
1	18.67	17.44	2.96%
3	41.35	42.57	5.89%
7	47.15	49.93	11.38%
14	50.35	56.08	-1.55%
28	60.60	59.66	4.51%

FIG. 22

Time	Recipe 3 (Structure Coring Sample Strength Compared with Invention results)			
		Coring Sample Strength	Invention	Error Rate
-				
0.625 (15h)		-	-	-
0.75 (18h)		-	-	-
0.875 (21h)		-	-	-
1		-	-	-
3		38.75	35.74	-6%
7		46.38	50.38	-8%
14		57.75	55.00	5%
28		61.5	57.74	6%

FIG. 23