

MSP with Captivate™ Technology

Pill Detection

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MSP System Applications

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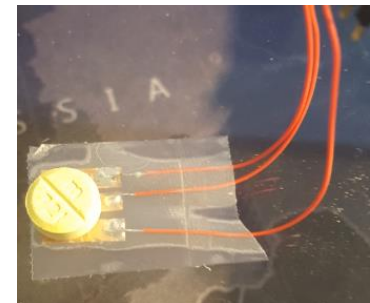
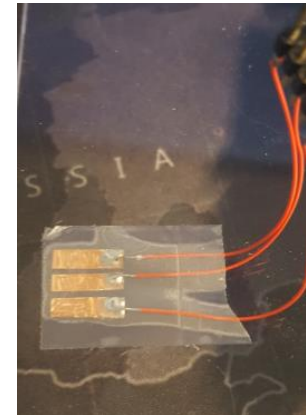
Description

- Determine if it is possible to detect various pill sizes using self and mutual capacitive modes
- Used planar and parallel mechanical setups
- Using MSP430FR2676

Sensor Configuration #1

- Planar, self mode, 2 channels, GND in middle
- 3 electrodes in parallel
- Pill sits directly on top of electrodes
- Results
 - Parameters = CC = 500, CG = 100
 - Decent detection with margin

	SELF	Req'd min
Cnt	%change	0.30%
60	-2.1%	YES
20	-0.8%	YES
40	-1.5%	YES
20	-0.8%	YES



Sensor Configuration #2

- Parallel plastic plates, 5mm separation (adjustable)
- Mutual mode
- Results
 - Causes negative touch
 - Theory: pill is not grounded so causes a shift in baseline calibration when placed in between plates
 - Very sensitive – promising!
- Recommend further investigation as possible solution.

	500		
	Mutual	Req'd min	
Cnt	%change	0.30%	
-282	25.9%	YES	
-145	8.2%	YES	
-241	18.6%	YES	
-75	3.5%	YES	

