**Design of MEMS Capacitive Comb Accelerometer with Perforated Proof Mass for Seismic Applications**

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**Fig. S1.** Mass-Spring-Damper system of the device

**Table s1**

Comparison of geometrical parameters of proposed and existing systems

| Design Parameters | Dimensions |
| --- | --- |
| Proposed Model | Existing Model |
| Beam length*, Lb* | 280 μm | 350μm |
| Beam width, *Wb* | 2 μm | 2 μm |
| Proof mass length, *Lm* | 448 μm | 350 μm |
| Proof mass width, *Wm* | 200 μm | 70 μm |
| Number of sensing fingers, *Ns* | 42 | 24 |
| Number of driving fingers, *Nd* | 12 | 8 |
| Spring constant, *K* | 0.1567 N/m | 0.4564 N/m |
| Capacitance gap, *d* | 1 μm | 2 μm |
| Anchor size | 17\*17 μm2 | 40\*40 μm² |
| Length of fingers, *Lf* | 140 μm | 200 μm |
| Width of fingers, *Wf* | 4 μm | 4 μm |
| Acceleration due to gravity*, g* | 9.8m/s² | 9.8m/s² |
| Device thickness*, h* | 5μm | 4μm |