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Carbon Sensor for Acetone Sensing.

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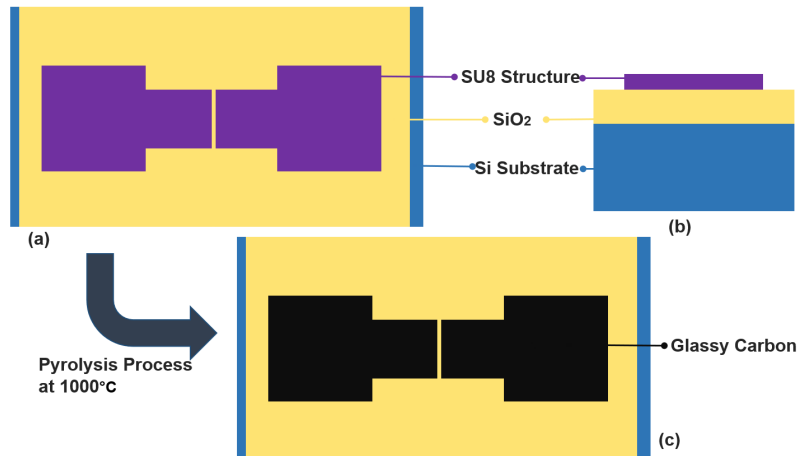
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Supplementary Materials (SM)

SM Table 1: Details of Materials and Companies Involved (*Supplementary material of Section 2.1 Materials*)

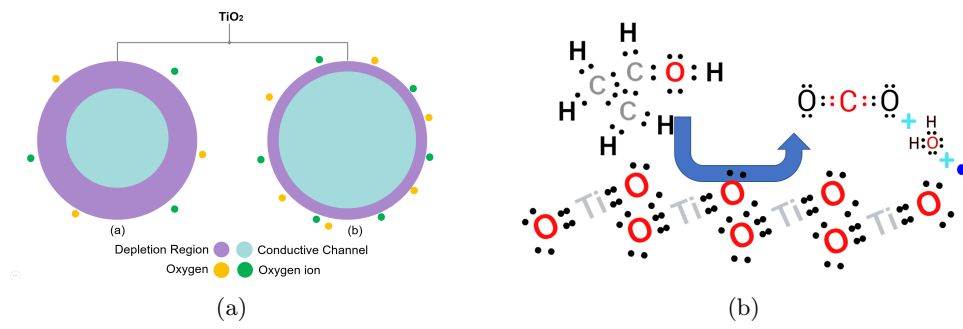
Sl. No.	Material	Obtained from
1	Silicon Wafer	Siltronic in Germany
2	SiO ₂	Oxidation Dry-wet-dry (20-120-20 min)
3	SU-8	MicroChem Corp in USA
4	TiO ₂ NP	Sigma Aldrich in Germany
5	PVA	Sigma Aldrich in Germany
5	Silver Conductive Past	M.G. Chemicals in Canada



SMFig. 1: A graphical illustration of the SU-8 electrode's transition to Glassy carbon electrode (a) SU8 Structure developed using photolithography Process, (b) Cross-sectional view of (a), (c) Developed GCE after pyrolysis process (*Supplementary material of Section 2.2 Fabrication of glassy carbon single electrode*).

SM Table 2: Results obtained using Parametric Analyzer: Voltage, current and resistance change in the exposure and absence of acetone (Sample 1 and 2) (*Supplementary material of Section 3.2 Results obtained using parametric analyzer, Fig. 7 (a), (b) and 8 (a), (b)*).

Voltage (V)	Sample 1				Sample 2			
	RCAA (Ω)	CIAA (A)	RCPA (Ω)	CIPA (A)	RCAA (Ω)	CIAA (A)	RCPA (Ω)	CIPA (A)
0.1	15002.27095E+6	6.66566E-12	13.4029E+6	7.461100E-9	153.2140E+6	652.6817E-12	8.1539E+6	12.2640E-9
0.2	1122.714572E+6	1.78140E-10	10.6194E+6	18.83340E-9	204.4485E+6	978.2415E-12	6.2066E+6	32.2240E-9
0.3	320.8513723E+6	1.93501E-10	10.4192E+6	28.79300E-9	140.7491E+6	2.1315E-9	6.2172E+6	48.2535E-9
0.4	503.2430446E+6	7.94845E-10	10.4718E+6	38.19770E-9	199.5574E+6	2.0044E-9	10.1908E+6	39.2513E-9
0.5	305.8192394E+6	1.63495E-09	10.5299E+6	47.48400E-9	151.1472E+6	3.3080E-9	8.4588E+6	59.1101E-9
0.6	604.106727E+6	9.93202E-10	12.6862E+6	47.29550E-9	124.4693E+6	4.8205E-9	7.9575E+6	75.4006E-9
0.7	546.8915003E+6	1.27996E-09	12.0144E+6	58.26350E-9	123.8761E+6	5.6508E-9	7.7401E+6	90.4383E-9
0.8	601.5885365E+6	1.32981E-09	11.6880E+6	68.44620E-9	124.5640E+6	6.4224E-9	7.6236E+6	104.9371E-9
0.9	467.0514888E+6	1.92698E-09	11.5093E+6	78.19760E-9	123.7592E+6	7.2722E-9	7.5614E+6	119.0259E-9
1.0	583.8853071E+6	1.71267E-09	11.3814E+6	87.86280E-9	126.3385E+6	7.9152E-9	7.5128E+6	133.1065E-9
1.1	418.6167584E+6	2.62770E-09	11.2893E+6	97.43700E-9	127.7308E+6	8.6119E-9	7.4701E+6	147.2538E-9
1.2	633.1346685E+6	1.89533E-09	11.2257E+6	106.8975E-9	126.7473E+6	9.4677E-9	7.4320E+6	161.4639E-9
1.3	541.0357980E+6	2.40280E-09	11.1585E+6	116.5027E-9	129.7408E+6	10.0200E-9	7.3927E+6	175.8502E-9
1.4	637.7510208E+6	2.19521E-09	11.1048E+6	126.0719E-9	128.8446E+6	10.8658E-9	7.3439E+6	190.6349E-9
1.5	478.2120529E+6	3.13668E-09	11.0436E+6	135.8259E-9	129.7536E+6	11.5604E-9	7.2927E+6	205.6858E-9
1.6	435.4335785E+6	3.67450E-09	10.9983E+6	145.4774E-9	130.8506E+6	12.2727E-9	7.2383E+6	221.0459E-9
1.7	363.6282609E+6	4.67510E-09	10.9442E+6	155.3332E-9	131.0695E+6	12.9702E-9	7.1804E+6	236.7547E-9
1.8	345.3540532E+6	5.21204E-09	10.8986E+6	165.1583E-9	129.6268E+6	13.8860E-9	7.1242E+6	252.6604E-9
1.9	340.1917842E+6	5.58508E-09	10.8456E+6	175.1869E-9	131.1934E+6	14.4824E-9	7.0623E+6	269.0343E-9
2.0	336.1215814E+6	5.95023E-09	10.7887E+6	185.3792E-9	132.0028E+6	15.1512E-9	6.9970E+6	285.8385E-9
2.1	335.4257381E+6	6.26070E-09	10.7308E+6	195.6992E-9	131.4955E+6	15.9701E-9	6.9361E+6	302.7627E-9
2.2	335.5292616E+6	6.55681E-09	10.6646E+6	206.2900E-9	142.1645E+6	15.4750E-9	6.8751E+6	319.9932E-9
2.3	333.0744480E+6	6.90536E-09	10.6050E+6	216.8789E-9	144.5874E+6	15.9073E-9	6.8158E+6	337.4492E-9
2.4	338.9228315E+6	7.08126E-09	10.5341E+6	227.8314E-9	136.8687E+6	17.5350E-9	6.7582E+6	355.1242E-9
2.5	326.9349173E+6	7.64678E-09	10.4627E+6	238.9344E-9	136.8352E+6	18.2702E-9	6.6984E+6	373.2212E-9
2.6	325.0153330E+6	7.99962E-09	10.3861E+6	250.3349E-9	135.5895E+6	19.1755E-9	6.6371E+6	391.7379E-9
2.7	327.7932269E+6	8.23690E-09	10.3103E+6	261.8744E-9	143.2056E+6	18.8540E-9	6.5758E+6	410.5958E-9
2.8	328.1473386E+6	8.53275E-09	10.2278E+6	273.7630E-9	143.0608E+6	19.5721E-9	6.5140E+6	429.8426E-9
2.9	324.1323386E+6	8.94696E-09	10.1451E+6	285.8509E-9	137.2850E+6	21.1239E-9	6.4519E+6	449.4829E-9
3.0	326.1949760E+6	9.19695E-09	10.0596E+6	298.2241E-9	136.6543E+6	21.9532E-9	6.3934E+6	469.2364E-9
3.1	326.0329135E+6	9.50824E-09	9.9650E+6	311.0895E-9	135.3419E+6	22.9049E-9	6.3311E+6	489.6435E-9
3.2	313.7383909E+6	1.01996E-08	9.8798E+6	323.8941E-9	141.2450E+6	22.6557E-9	6.5694E+6	487.1046E-9
3.3	319.3809142E+6	1.03325E-08	9.7879E+6	337.1518E-9	141.8669E+6	23.2612E-9	6.4565E+6	511.1110E-9
3.4	310.7957530E+6	1.09397E-08	9.6984E+6	350.5746E-9	135.9416E+6	25.0107E-9	6.3628E+6	534.3572E-9
3.5	306.8117783E+6	1.14076E-08	9.6052E+6	364.3866E-9	135.7159E+6	25.7892E-9	6.2782E+6	557.4827E-9
3.6	304.0080228E+6	1.18418E-08	9.5127E+6	378.4425E-9	134.3538E+6	26.7949E-9	6.2031E+6	580.3588E-9
3.7	302.0030894E+6	1.22515E-08	9.4206E+6	392.7550E-9	134.1615E+6	27.5787E-9	6.1300E+6	603.5874E-9
3.8	301.8329078E+6	1.25897E-08	9.3265E+6	407.4394E-9	132.7506E+6	28.6251E-9	6.0638E+6	626.6691E-9
3.9	298.9613275E+6	1.30452E-08	9.2372E+6	422.2059E-9	136.9355E+6	28.4806E-9	6.0023E+6	649.7507E-9
4.0	296.1109255E+6	1.35085E-08	9.1439E+6	437.4498E-9	136.8146E+6	29.2367E-9	5.9410E+6	673.2910E-9
4.1	288.1541910E+6	1.42285E-08	9.0560E+6	452.7395E-9	132.8401E+6	30.8642E-9	5.8829E+6	696.9326E-9
4.2	288.1951956E+6	1.45735E-08	8.9691E+6	468.2734E-9	131.9938E+6	31.8197E-9	5.8286E+6	720.5865E-9
4.3	285.9379486E+6	1.50382E-08	8.8857E+6	483.9242E-9	130.6645E+6	32.9087E-9	5.7780E+6	744.2009E-9
4.4	283.8543923E+6	1.55009E-08	8.8048E+6	499.7269E-9	133.5268E+6	32.9522E-9	5.7326E+6	767.5393E-9
4.5	279.3519947E+6	1.61087E-08	8.7345E+6	515.1973E-9	132.5937E+6	33.5938E-9	5.6919E+6	790.6037E-9
4.6	279.5317995E+6	1.64561E-08	8.6505E+6	531.7625E-9	129.2491E+6	35.5902E-9	5.6502E+6	814.1283E-9
4.7	277.0263349E+6	1.69659E-08	8.5713E+6	548.3427E-9	128.1866E+6	36.6653E-9	5.6116E+6	837.5490E-9
4.8	270.9655332E+6	1.77144E-08	8.4923E+6	565.2177E-9	126.7987E+6	37.8553E-9	5.5728E+6	861.3250E-9
4.9	271.5899933E+6	1.80419E-08	8.4196E+6	581.9778E-9	128.8113E+6	38.0401E-9	5.5368E+6	884.9923E-9
5.0	265.2048201E+6	1.88534E-08	8.3482E+6	598.9298E-9	127.5278E+6	39.2072E-9	5.5033E+6	908.5393E-9



SMFig. 2: Schematics of the electrical structures of the TiO_2 (a) In the presence of ((a)Air, (b)Acetone), (b) In the presence of acetone (*Supplementary material of Section 3.3 Influence of acetone in surface reaction*).