This work presents the hydrothermal fabrication of novel Cu doped graphitic carbon nitride glucose sensor through non-enzymatic electrochemical approach. Graphitic carbon nitride is the recent materials used for sensing purpose having low preparation cost, stable, high sensitivity and environment friendly. Doping with transition metal (Cu, Ni) increase the conductivity of graphitic carbon nitride is the main interest of this research. Electrochemical sensing of glucose was done using modified Fluorine doped Tin Oxide (FTO) by the incorporation of Cu, Ni and NiCu nanoparticles into the Graphitic carbon nitride making it CuO/GCN/FTO. Characterization of modified nanoparticles was done by Fourier-transformed Infrared (FTIR) and Ultraviolet visible (UV-Vis) spectroscopy. The bandgap calculated from UV-Vis spectroscopy using Tauc equaction plot was 2.6 eV for pristine GCN and 1.75 eV for Cu doped GCN. Electrochemical catalytic activity of modified electrode was done through potentiometric analysis. Cyclic Voltammetry (CV) of the un-doped GCN, Cu-GCN and Ni-GCN modified catalyst with glucose concentration was studied. The Cu-GCN shows highest sensitivity towards glucose sensing indicating a current potential of 1.16 mA mM cm^{-2}. Further bi-metallic, NiCu-doped GCN was studied to determine co-doping effect of GCN. The stability of electrode was determined after 2 weeks of its fabrication which shows 10% reduction in current. The results predict that the synthesized Cu/GCN/FTO is very prominent for sensing of glucose through non-enzymatic method also bi-metallic doping further enhances its catalytic ability.