Graphene bilayer systems are known to exhibit a band gap when the layer symmetry is broken by applying a perpendicular electric field. The resulting band structure resembles that of a conventional semiconductor with a parabolic dispersion. Here, we introduce a bilayer graphene heterostructure, where single-layer graphene is placed on top of another layer of graphene with a regular lattice of antidots. We dub this class of graphene systems GOAL: graphene on graphene antidot lattice. By varying the structure geometry, band-structure engineering can be performed to obtain linearly dispersing bands (with a high concomitant mobility), which nevertheless can be made gapped with a perpendicular field. We analyze the electronic structure and transport properties of various types of GOALs, and draw general conclusions about their properties to aid their design in experiments.