Navigation

$$N(p^{x,y}, g^{x,y}) \rightarrow \vec{v}_{actual}$$

Logical Waypoint Determination

$$WD(g^{x,y}, p^{x,y}, E(Env_{Cognitive})) \rightarrow \{e_i : e \in E, i = [0, n], e_0 = p^{x,y}, e_n = g^{x,y}, e_i < e_{i+1}\}$$

Current Waypoint Path Determination

$$PD(p^{x,y}, wp_{0\cdots n}^{x,y}, O_{perc}) \rightarrow \{iwp_i^{x,y} : i = [0, m], iwp_0^{x,y} = p^{x,y}, iwp_m^{x,y} = wp_j^{x,y}, iwp_i^{x,y} < iwp_{i+1}^{x,y}, wp_{(k<j)} < wp_j, wp_{(k>j)} \notin wp_{visible}\}$$

Motion Planning

$$MP(\vec{v}_{pref}, O_{perc}, t_i, N) \rightarrow \{\vec{v}_{possible} : p_{t_{i+n}}^{Agent} \neq p_{t_{i+n}}^{O_{perc}}, n = [1, N]\}$$

Physical Consistency Check

$$PCC(\vec{v}_{possible}, Env_{actual}, O_{actual}, t_i) \rightarrow \{\vec{v}_{actual} : p_{t_{i+1}}^{Agent} \neq p_{t_{i+1}}^{O_{actual}}\}$$