

**SMART ORDER AND COURIER DELIVERY
USING AN AUTOMATED NEURAL NETWORK**

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Abstract -

Ever since the advent of the internet-age, the e-retail industry is expanding at a geometric rate day by day. Hence, there is a need to provide customers with superior facilities for an elevated user-experience, along with an optimized delivery/servicing system which is both efficient and reliable. As computer science under-graduates, the best possible solution would be to use the fundamentals of the subject, as it would automate the entire process and increase precision of such a scalable system. Developing such an ecosystem may not be easy, but it is worth trying.

For starters, we have developed a generic online-shopping portal with a simple front-end website for order-placement and easy item-navigation using indexed-TST (Ternary-Search Tree) searching and a fairly-complex backend abstraction which involves a database to manage all incoming information and a 10-layer deep-neural network for predicting optimal delivery routes for our imaginary delivery-agent, who would be using a mobile application for receiving assistance from the server.

Since, we are dealing with a special case of ‘Travelling-Salesman Problem’, which is in fact an ‘NP-Hard’ problem without any polynomial-time solution, our ‘Neural-Model’ is still at a nascent stage of learning with a moderate prediction accuracy. Plus, we haven’t even used any advanced ‘AI-Library’ like ‘Google’s Tensor-Flow’ or ‘IBM Watson’. The entire neural-network was implemented from scratch. So far, we have restricted our-model to 10-Layers and 10 City-Distances, with training based on 45-datasets, but hopefully we can expand on that later. Experimentations are ongoing.