Training Human Activity Recognition Model using Textual Descriptions of Sensor Triggers (TDOST)

Source Smart Home

Source Layout

Generate TDOST

"Bed to Toilet" Activity

1. Motion sensor in *bedroom* fired with value *ON* at seven hours thirty minutes AM.
2. After *ten seconds*, motion sensor near bathroom fired with value *ON*

Sentence Encoder ❄

TDOST Embeddings

Feature Encoder + Linear Layer 🔥

Transfer Weights

Deployment of Trained HAR Models with TDOST to Target Smart Homes

Target Smart Home

Target Layout

Generate TDOST

Unknown Activity

1. Motion sensor in *first bedroom* fired with value *ON* at six hours ten minutes AM.
2. After *seven seconds,* motion sensor *near bathroom sink* fired with value *ON*

Sentence Encoder ❄

TDOST Embeddings

Feature Encoder + Linear Layer ❄

❄ **Frozen**   🔥 **Trainable**