# Lightweight Emotion Detection from Text — Brief Literature Review (2020–2025)

## *1) Task & “Lightweight” scope*

Emotion detection = predicting emotions from short texts. GoEmotions (58k Reddit comments, 27 emotions + neutral) is the main benchmark. Lightweight means models with fewer parameters and faster inference, e.g., DistilBERT, ALBERT, ModernBERT.

## *2) Datasets*

• GoEmotions — 27 emotions; baseline BERT F1 ≈ 0.46 (fine-grained), 0.64 (6 emotions). • dair-ai / Emotion — 6 emotions (Twitter). • EmoContext (SemEval-2019) — 4 dialog emotions.

## *3) Lightweight Models*

• DistilBERT — ~40% fewer params, ~60% faster. • ALBERT — parameter-sharing, efficient. • ModernBERT — modern efficient encoder; public GoEmotions fine-tunes exist. • Distilled student for GoEmotions — easy baseline.

## *4) Baselines & SOTA signals*

Original GoEmotions baseline (BERT-base): avg F1 ≈ 0.46 (27 emotions). Lightweight variants (DistilBERT, ALBERT, ModernBERT) give strong trade-offs.

## *5) Lightweighting techniques*

• Knowledge Distillation (teacher → student). • Quantization (int8 / int4). • Efficient encoders (ModernBERT). • Data augmentation for rare emotions.

## *6) Evaluation*

Report micro-/macro-/weighted-F1. Show both full (27+neutral) and grouped (6-emotion) results.

## *7) Recommended project plan*

Task: GoEmotions multi-label classification. Baselines: DistilBERT, ALBERT, distilled checkpoint, ModernBERT. Experiments: KD, quantization. Report: Params, latency, F1 (micro/macro/weighted).

## *References*

Demszky et al., 2020 – GoEmotions dataset.
Sanh et al., 2019 – DistilBERT.
Lan et al., 2019 – ALBERT.
ModernBERT model cards (HuggingFace, 2024).
Recent KD/quantization studies (2024–2025).