Smart fLAIr

a Smart App for Fast Leaf Area Index Retrieval

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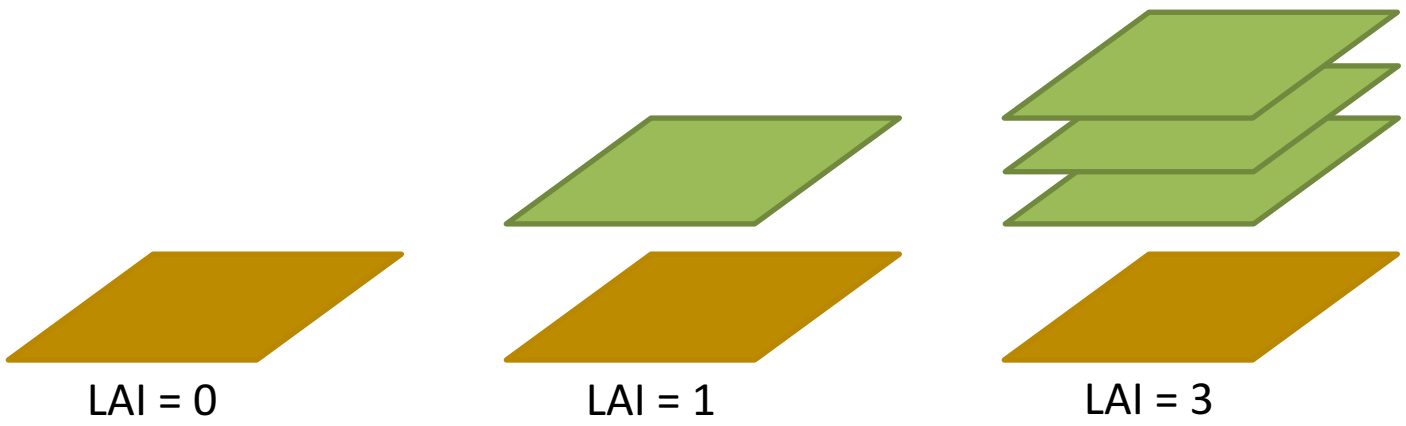
Leaf Area Index (LAI) in agricultural context

- parameter describing photosynthetic performance and vital condition of plants
- key variable in various models, e.g. yield models
- indicator for yield-reducing processes

$$LAI = \frac{(one-sided)\ green\ leaf\ area}{ground\ surface\ area}$$



Smart fLAIr's objective: a fast and cost-efficient LAI assessment

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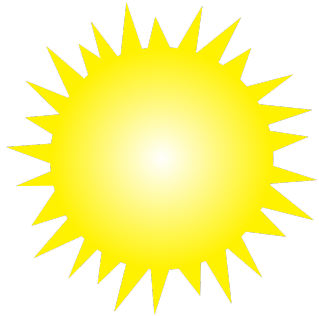
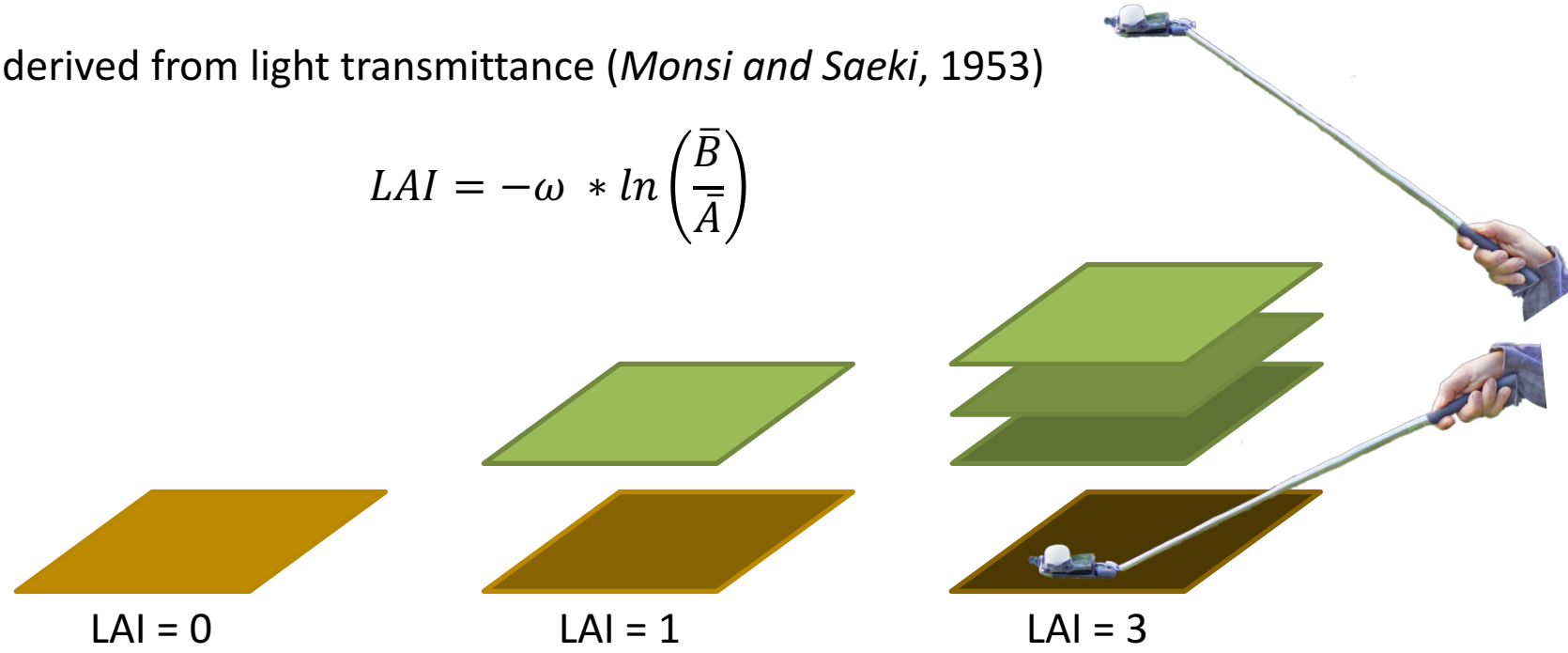
Methodology

- radiation-based LAI estimation
- Ambient Light Sensor (ALS)
- above (*A*) + below (*B*) canopy light measurements



→ LAI derived from light transmittance (*Monsi and Saeki*, 1953)

$$LAI = -\omega * ln\left(\frac{\bar{B}}{\bar{A}}\right)$$



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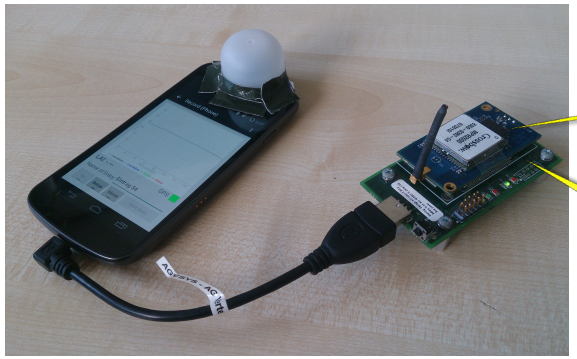
Special Features (optional)

- selfie stick operation
- sensor accessory: diffuser and optical filter cap

- WSN connectivity (via USB or Bluetooth)



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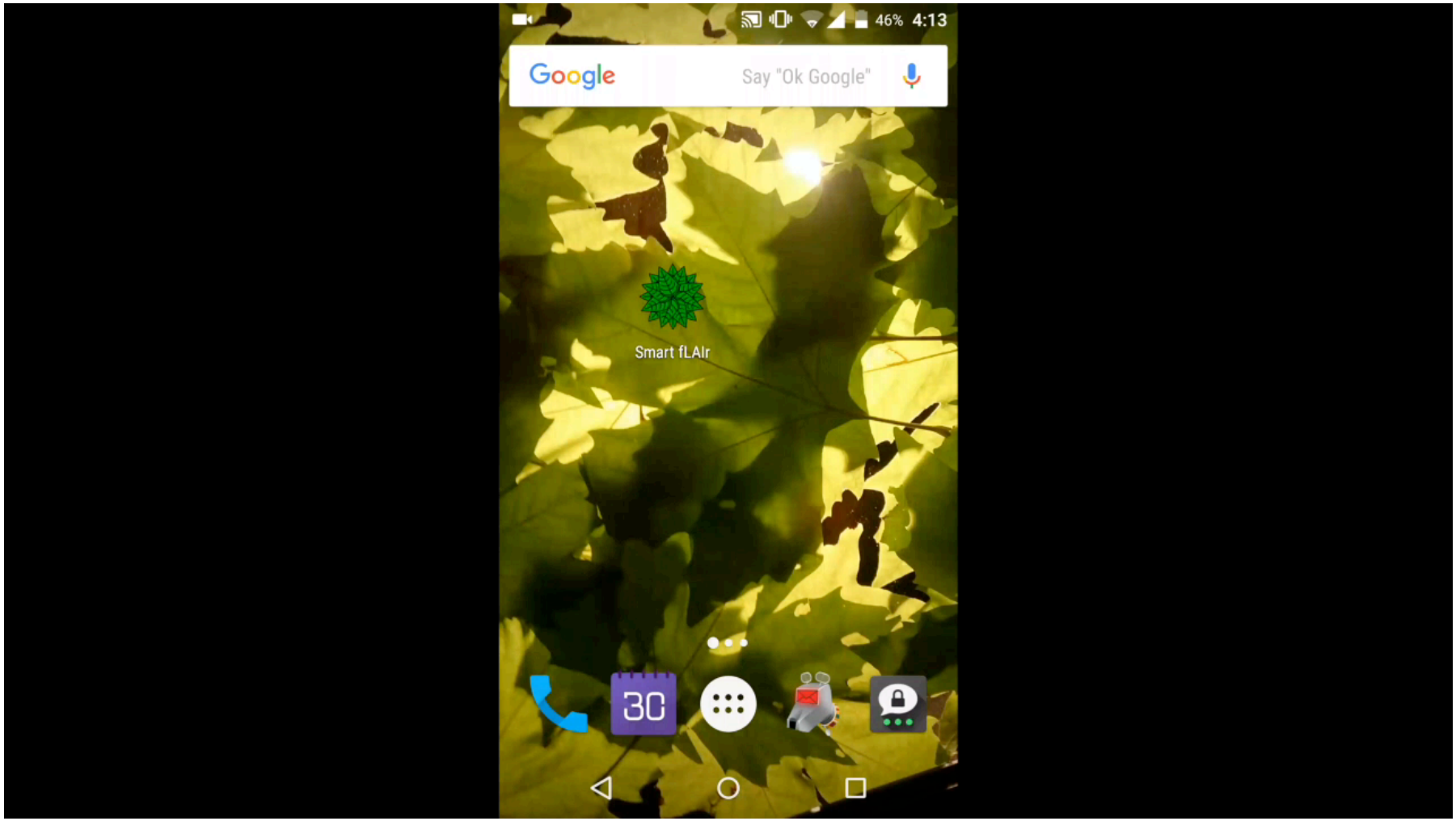
Video Demo: Smart fLAIr in the wild



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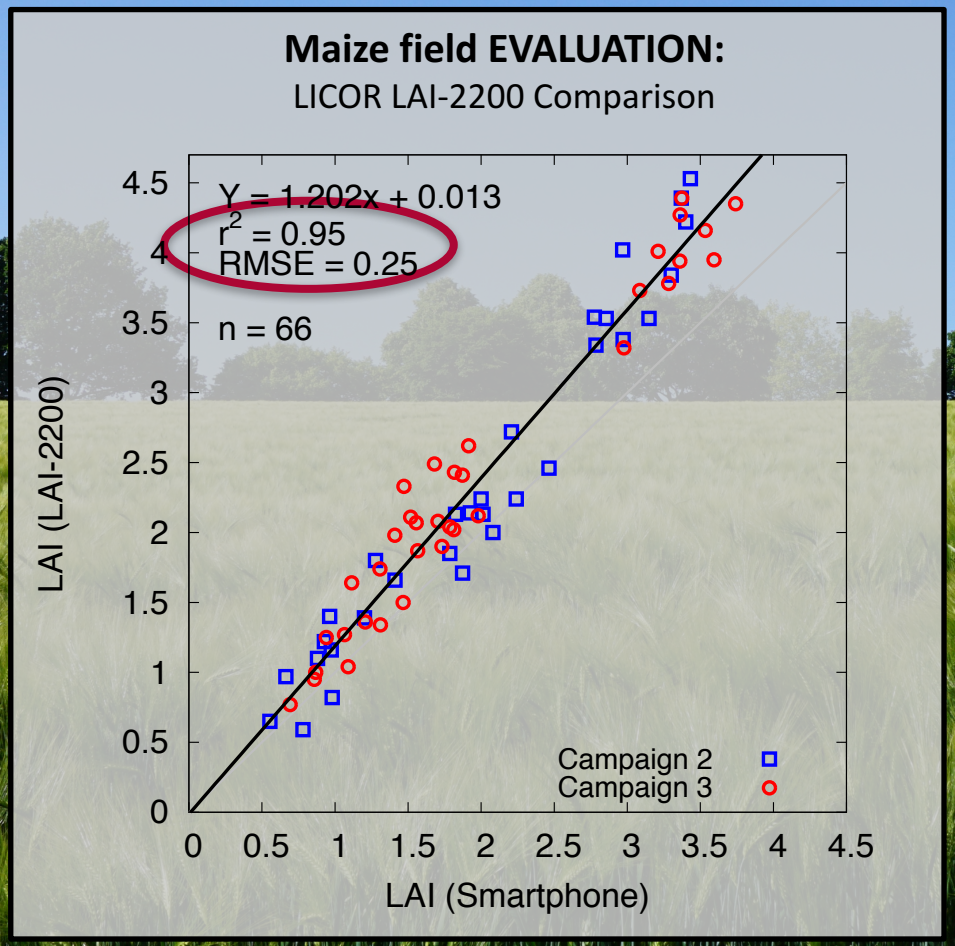
Thank you for your attention!



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