Using (tiny) Machine Learning for Agriculture in Remote Areas of Indonesia

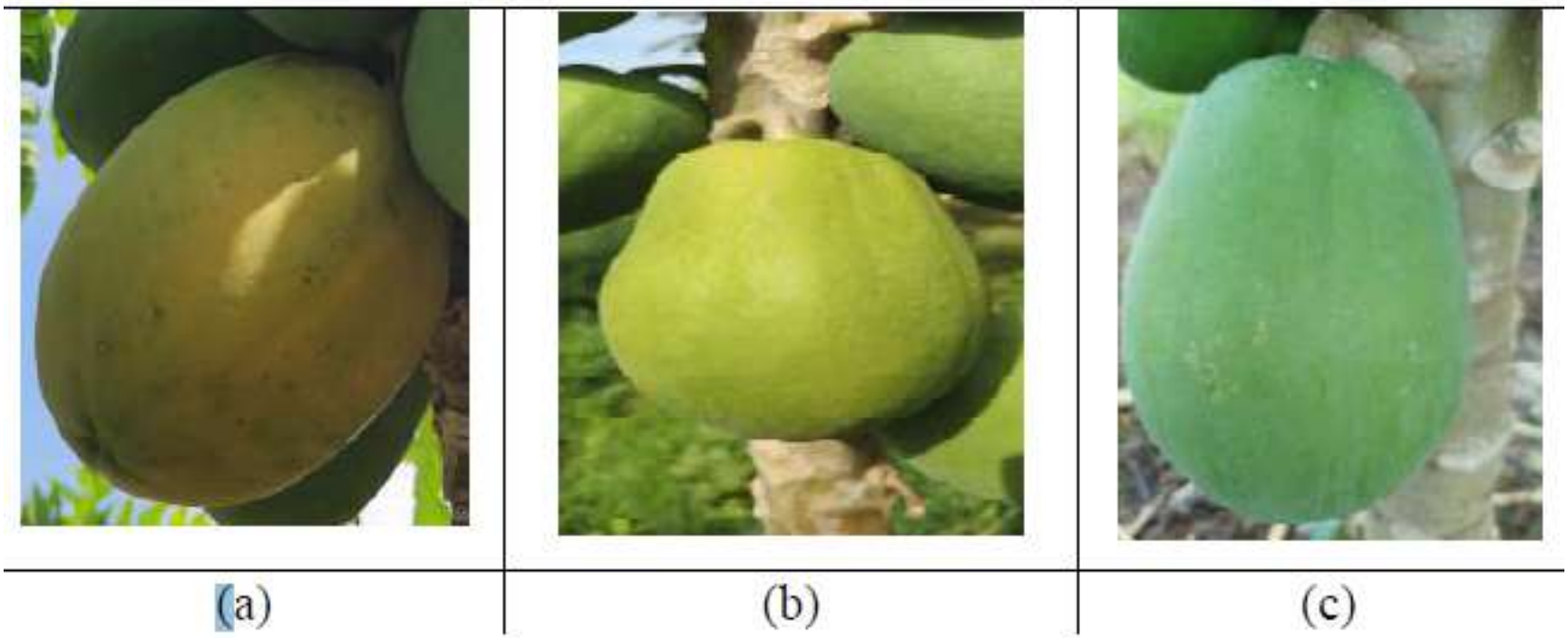
Agus Subekti
National Research and Innovation Agency, Indonesia, and
Nusa Mandiri University, Jakarta, Indonesia
agus.subekti@brin.go.id

UNU Macau, 30 April 2024

Uncovered of Internet Connection

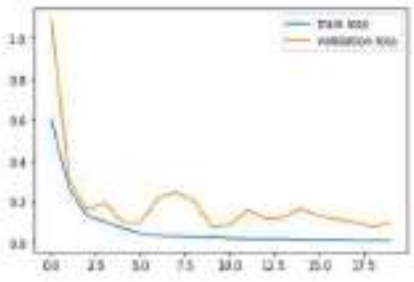
- many rural areas are not connected to the Internet
- cloud based machine learning inference is not suitable

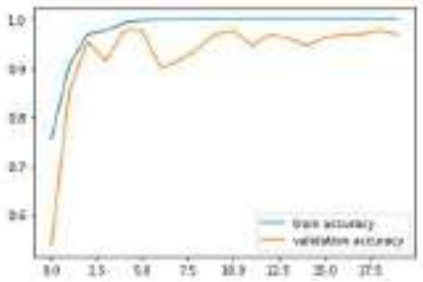
Use Case 1: Selecting fruits that's ready to be picked



(a) (b) (c)

Machine Learning for selecting fruit





Use case 2: plant disease detection

Eucalliptus pellita's leaf disease detection

- Eucalliptus pellita is used for making pulp/paper
- It is planted in remote areas, no experts in agricultural diseases

Seeding

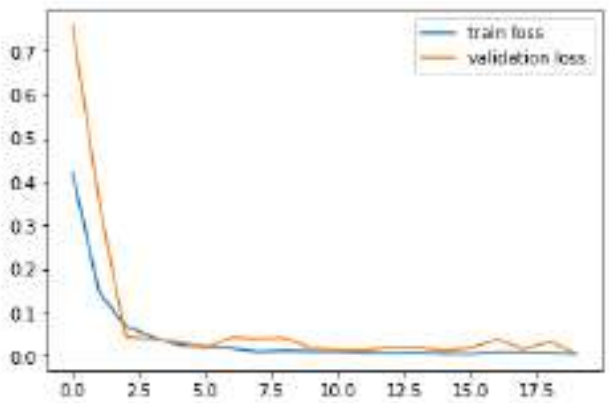
some bacterial diseases

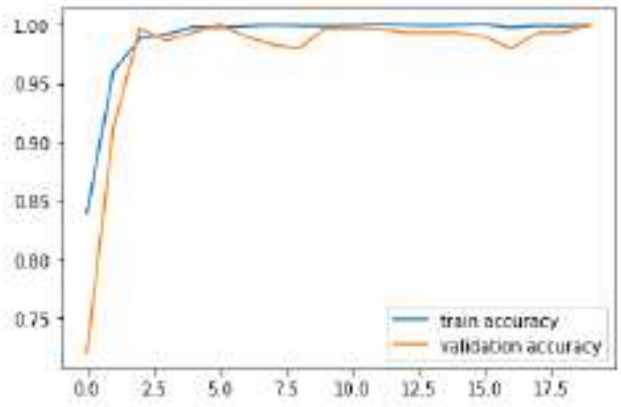
Normal

Xanthomonas

Cylindrocladium

Machine Learning for diseases classification





Future Planning

- improve to object detection
- low cost tinyML solutions
- dissemination of knowledge on how to make
- crowd sensing

1

[1] The experiments of presented work're performed by my supervised students: Yusuf(2023) and Deviana(2023)

Thank you for all Organizers and Participants
ICTP-UNU Workshop on TinyML for Sustainable Development 2024