

# **Infant Biometrics For Unique Identification: Field Activities 2018, 2019**

**Paul Macharia, Y.Spike Koda**

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# Introduction

← Standardmedia.co.ke

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## Puzzling tale of 'identical' girls reunited 19 years later

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👤 Stephen Rutto 🕒 17th Apr 2019 00:00:00 GMT  
+0300



*Melon Lutenyo (left) and Sharon Mathias. They believe they are sisters and that they were separated at birth. [Kevin Tunoi, Standard]*



# Field Research in Kenya, 2018

A lack of appropriate follow-up of HIV Exposed Infants (HEIs) after delivery contributes to suboptimal access and uptake of HIV Early Infant Diagnosis (EID) interventions;



# Field Research in Kenya, 2018

Image Taken from 15 days newborn



Captured by ZAK-108, Resolution: 1,270ppi  
Method: CMOS+SHF+SLDR (Side LED only)  
Skin conditions: Moisture level 19, Oil level 15



This is a feature extracted image and this shows 109 minutiae detected. This can apparently be matched by existing matching algorithm.

At first onsite data collection, brief evaluation was prepared by using both thumb and Index images which are taken from 3 neonates (15, 16, and 17 days old).

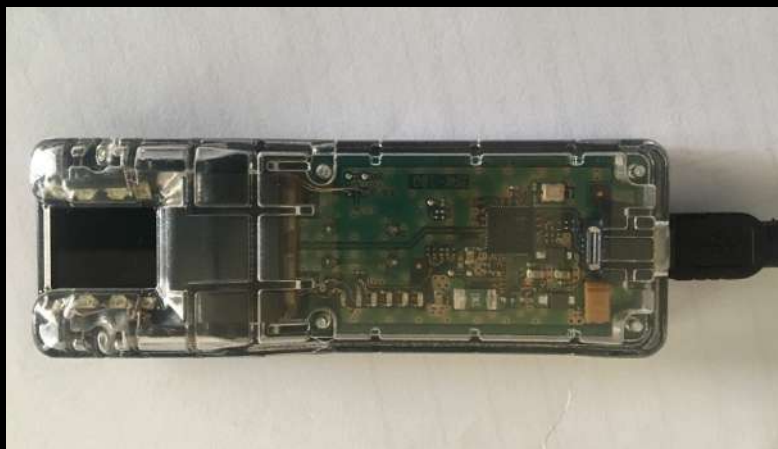
***Result: FNMR=6.5% at FMR=1%***

We need more researches to understand what the child-fingerprint is.



# Field Research in Kenya, 2019

New hardware to collect the fingerprint image from neonates.



ZAK-109

1,270ppi CMOS image sensor with mechanical guide to prevent the elastic deformation.



ZAK-X02

2,400ppi CMOS image sensor with faster fps for automated data collection mode

The research in 2019 focuses on understanding the physical differences between neonates and toddler to find the appropriate biometrics identification solution for providing “Legal Identity” for all neonates.



# **Infant Biometrics: The point of entry to a legal Identity**

**Paul Macharia**

# Introduction

- UNICEF's 2014 estimates Facility-based delivery rates in LMICs,
  - 48% in sub-Saharan Africa,
  - 44% in South Asia, and
  - 71% in the Middle East and North Africa



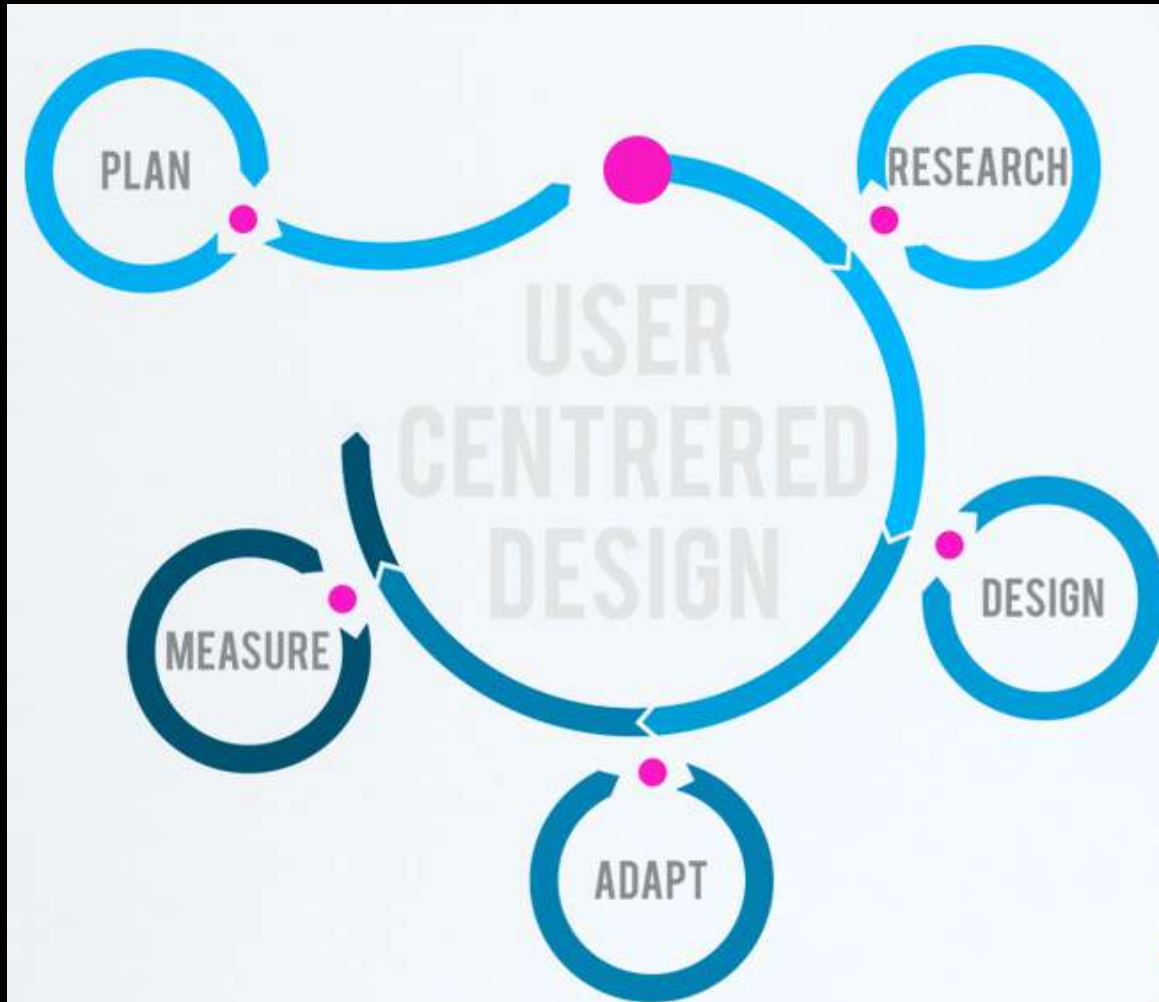
# Infant Unique Identification

- Several unique features of the newborn population lead to misidentification:
  - birth dates and similar medical record numbers.
  - Multiples will have identical surnames  
Hospitalized at the exact same time.
  - They are not able to speak.
  - They lack the distinguishing physical attributes and characteristics.





# User-Centered Design



\* Credit to photo owners



# What is a must have in infant biometrics?

- Direct impact to health outcomes
- Secure
  - Anonymous
- Simple
  - Non Technical Users
- Scalable
  - Mobile



# What is a nice to have in infant biometrics?

- Links to Civil Registration
  - First contact in health setting
- Data Analytics
  - Trends in immunization
  - Resource utilization
- Reminder Systems
  - Clinic visits



# What are the consequences of having a solution to the infant biometrics problem?

- HIV Exposed Infants
  - Potential Health Burden
- Immunization
  - Ineffective/Faulty Batch
- Civil Registration
  - Legal Identity at birth



# Who would be the early adopters?

- Referral Hospitals
  - Kenyatta National Hospital
- Maternity Hospitals
  - Pumwani Hospital
- Immigration



# Impact of infant biometrics on civil registration? Can you speculate how would that work?

- Tamper-proof
- First contact
- Birth Certificate
  - Biometric-Based Unique ID



# In your opinion how far are we from seeing the adoption go in mass?

- Take off
  - 1 to 2 Years
- Scale-up; Standard of Care
  - Next 5 Years



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## KNH on the spot after brain surgery is performed on wrong patient


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Byzy Ngũgĩ 02nd Mar 2018 00:00:00 GMT +0300




*Kenyatta National Hospital CEO Lily Korir; She has apologised for the surgery performed on the wrong patient. [Boniface Okendo/Standard]*


Kenyatta National Hospital has apologised for a monumental blunder—performing a brain surgery on the wrong patient.



**Recommended**



Joy for woman who gave birth at Uhuru Park alone



Ailing boy still crying for help





Thank You!

