Show us your BabyFace: Researchers appeal for help from new parents

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A new app launched by The University of Nottingham is offering parents of newborn infants the chance to play a crucial role in research that could save the lives of premature babies in the developing world.

BabyFace will ask parents of babies up to 21 days old to upload anonymous images of their baby's feet, face and ears, as well as information about their date of birth and their gestational age—how many days/weeks early or late they were born.

The app specifically covers babies born anywhere between 28 days early up to 14 days late and will allow the researchers to build the first detailed database of the distinctive features that are present at different stages of gestational development.

This will be used to form the basis of a separate app—NeoGest—that

will allow people in the [developing world](link) to use a smart phone to more accurately estimate the prematurity of a baby and decide whether specialist medical care is required.

Dr Michel Valstar, of the University's School of Computer Sciences, has been leading the development of BabyFace.

He said: ""What defines each gestational age is the number of wrinkles and the depth of them in the feet. The roundness of the eyes and how sharp they are at the corners is another indicator. By using and storing the pictures we collect, the app will begin to recall the shape of the eyes, ears and wrinkles in the feet."

More than one million babies worldwide die as a result of prematurity every year, the majority of whom are born in the developing world. Premature babies in continents like Africa are often at greater risk of dying as a result of poor nutrition and infections, as well as a result of serious diseases including TB and HIV.

In rural areas, women rarely have access to the antenatal ultrasound scans which doctors use to determine the gestation of the babies of their western counterparts. Traditional methods of estimating gestation based on measurements and birth weight are not always reliable.

However, being able to determine the development of babies—and the potential consequences of their [premature birth](link)—can help village elders and community leaders to decide whether they might simply need to offer guidance to the mother on the hygiene and nutritional needs of their infant or whether it is vital to make a trip to a hospital which can often be hundreds of miles away.

The computer scientists at Nottingham have joined forces with experts in the University's Division of Child Health, Obstetrics and Gynaecology

for the project, which has been supported with a $100,000 grant from the Bill and Melinda Gates Foundation.

Dr Don Sharkey, Clinical Associate of Neonatal Medicine, said: "If a smartphone could give us the birth gestation of a newborn baby it would allow many low-middle income countries to give more detailed local advice to parents that could increase the chances of survival for [premature babies](link)."

If successful, the NeoGest app, which will be free to download, will combine simple measurements with elements of the Ballard test which is used by experienced healthcare professionals to estimate gestation and look at developmental characteristics including the characteristics of lines developed in the skin on the foot or the shape of features like the ear.

It will use the mobile phone's camera to take images of the foot, face and ear of the baby and upload it to a huge database where it will compare it with pictures of potentially hundreds of other babies at various known gestational ages to find a 'match'.

As part of the project, the clinical team has been collecting baseline comparable data by taking pictures of babies in the maternity and neonatal units at Nottingham University Hospitals NHS Trust.

The team also plans to explore the potential ethnic differences in gestational development between babies born in different parts of the world—babies born in Africa or Asia may have different developmental characteristics compared to their western counterparts.

The research project was one of around just 60 successful bids out of 1,700 applications worldwide for funding from the Gates Foundation's Grand Challenges Explorations Grant programme.

Grand Challenges Explorations (GCE) funds individuals worldwide to explore ideas that can break the mould in how we solve persistent global health and development challenges.

At the end of the project, if the team is able to demonstrate a successful prototype they will have the opportunity to bid for a much larger package of funding from the Gates Foundation to develop the technology for use in the real world.

BabyFace is available now for free download for Apple mobile devices via the Apple App Store. In line with the project's privacy policy, all data collected are completely anonymous, cannot be traced back to any of the participants and will only be accessible to the members of the research team in charge of the project.

More information: appsto.re/gb/2XFC6.i cvl.cs.nott.ac.uk/resources/babyface/

Provided by University of Nottingham

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