Design of an Improved Bucket Toilet for Emergencies

Development of innovative low-technology sanitation solutions for urban emergency situations
Who we are

Cranfield UNIVERSITY

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Agenda

- Project Aim
- Challenges
- Requirements
- Working Process
- The Product Features
- Next Step
Develop and build a prototype of a novel, low-tech, portable sanitation solution in urban emergency situations to provide an immediate sanitation response.
Challenges

- Low cost vs. High value
- Stackability
- Functionality vs. Simplicity
- Ergonomics
- Ease of Use
Requirements

1. Hint of Toilet Shape
   Seat
   Lid

2. Has a Bag

3. Ease of Handling

4. Minimises Visual Impact

5. Considers Short & Long Term Use & Disposal

6. Stackability

7. Maximum Cost
   £20 Per Unit
Working Process

Brief!

- Problem Definition
  - TRIZ & Kano

- Solution Concepts
  - Scamper

- Design Workshop
  - Prototyping

- Down Selection of Final Solution
  - Desirability Testing

Research in the topic of existing solutions called

The Deep Dive Method

Scoping & Opportunity

Develop & Deliver

- Ideation
  - ACCReX

- Down Selection
  - Weighted Matrix

- Product Development
  - Set Based Design

- Detail Design
  - Prototyping

10 - 16 February
17 - 23 February
24 - 02 February - March
03 - 16 March
17 - 04 March - April
Short video of working process

Access it here!

https://www.youtube.com/watch?v=HwPT_Zuig30&feature=youtu.be
SIT AND PULL

**Benefits**
- Easy to close bag;
- Minimise visual impact;
- Minimise handling of bag;
- No contact with bag whilst defecating;
- Multiple bags containment for simple daily disposal;
- Desirable design;

**Main Features**
- Four Units
- Stackability
- Slit For Bags
- Insert
- Grips
- Toilet Feel
Next Steps

- Bag development
- Field testing
- Manufacturing
- Disposal system
Thank you!