The Learning Coding and Prototyping (LCAP) Program
LCAP program 4 themes:

1. Sustainability
   (https://www.youtube.com/watch?v=zwJ5E_EUUF4)

2. Health
   (https://www.youtube.com/watch?v=9c05imowc7Q)

3. Security
   (https://www.youtube.com/watch?v=ckHdkOR1OHg)

4. Joy of Living
   (https://www.youtube.com/watch?v=sk3T3_QYrT0)
Examples
1. **Oroeco - Carbon footprint calculator**

- An app to calculate your daily carbon footprint
- Offer tips adapted to your necessities and way of life
- A community to compare your impact on the environment with others
- Help to reduce carbon emission
Source:

https://www.oroe.co.com/
2. HowGood – The sustainable food guide

- An app to offers its users a catalog with over 100,000 food products

- Analyzed through sixty indicators like ingredient supply, community impact, food processing or the level of producer commitment.

- Help consumer decide whether to buy it based on how respectful it has been with society or the environment
View Every Rated Product
The HowGood App has over 200,000 of them!

Key Features:
- Unlimited Usage
- View all the ratings: Good, Great, Best
- No cost, no ads
- Scan or search for the best products in your grocery store
- Information about your food that you can trust

Source: https://howgood.com/#/
3. iRecycle

- An app to find recycling locations and programs

- Access a recycling company’s details such as website, phone number, directions, hours of operation etc.

- The latest recycling news published daily.

Source:

http://earth911.com/eco-tech/irecycle-now-on-android/
Health

1. BrainCheck

- A technology startup
- Mobile app test to measure cognitive functions
- Log cognitive health data
- Provide physicians with your brain health data

Sources:

https://braincheck.com/products/

https://techcrunch.com/2016/10/27/braincheck-raises-3-million-for-app-to-monitor-brain-health/
2. GazeSpeak

- Mobile app developed by Microsoft
- For patients who cannot speak
- Machine learning to recognise eyes gestures
- Using eyes gestures to predict utterance

Source:

3. Baby Buddy - Predict a baby's needs

- **Problem**: Predict a baby’s need

- **Solution**:
  - Track the baby’s sleep time, feeding time, diaper change time etc with an app
  - Approximate the next feeding time with the recorded pattern
  - Set up a timer to remind the parent
3. Baby Buddy - Predict baby's needs without guess work
3. Baby Buddy - Predict baby's needs without guess work

Source:
https://github.com/cdubz/babybuddy
Security

1. Indoor security camera with face recognition

- Recognizing your family member with face recognition
- Receive alert when home intruder is detected
- Picture/video of intruder can be recorded and stored in the cloud or local SD card

Source:
2. Luggage locator

- A luggage tracking device
- Can be connected to cell tower
- Monitor your luggage in real time at any airport in the world

Source:
https://lugloc.com/
3. CarLock

- A device with GPS companioned with a mobile app
- Periodically monitor your car’s actions (movement, unlocking, engine startup etc.)
- Send notification to your smartphone when unauthorized actions take place
- Upload data to cloud

1. Increase self-compassion in depressed patients with virtual reality (VR)

- **Problem**: Self-criticism hinders the recovery of depression

- **Solution**: 
  - Patients are trained to express compassion to a virtual distressed child in VR
  - The virtual child responds positively
  - The patients then see themselves being that child to receive compassion

- **Result**: 3 repetitions of this scenario led to significant reductions in depression
1. Increase self-compassion in depressed patients with virtual reality (VR)

Sources:
- [http://bjpo.rcpsych.org/content/bjporcpsych/2/1/74.full.pdf](http://bjpo.rcpsych.org/content/bjporcpsych/2/1/74.full.pdf)
- [https://www.youtube.com/watch?v=GwxJVCESc-E](https://www.youtube.com/watch?v=GwxJVCESc-E)
2. Art therapy with VR

- **Problem**: Treating psychological disease, such as depression and post traumatic stress disorder (PTSD)

- **Solution**:  
  - Using virtual reality interface for creating art with the motion of your head  
  - Enabling users to share their masterpieces with a community of creators

- **Result**:  
  - Reduced depression  
  - Increased relaxation  
  - Improved self-esteem  
  - Stronger interpersonal communication  
  - Better quality of life
2. Art therapy with VR

```
using UnityEngine;
using System.Collections;
using System.Text;

public class CameraBehavior :MonoBehaviour {
    WWW get;
    WWW poster;

    GameObject ColorToolBar;
    CreatePicker colorPicker;
    GameObject cyl;
    public static float cylRadius;

    // Use this for initialization
    void Start () {
        cyl = GameObject.CreatePrimitive(PrimitiveType.Cylinder);
        cyl.transform.parent = transform;
        cyl.transform.localPosition = new Vector3(0f, 0f, 3.9f);
        cyl.transform.Rotate(90, 0, 0);
        cyl.transform.localScale = new Vector3(0.2f, 0.000000007F, 0.2f);
        cylRadius = 0.2f;
    }

    // Update is called once per frame
    void Update () {
        ColorToolBar = GameObject.Find("ColorToolBar");
        colorPicker = ColorToolBar.GetComponent<CreatePicker> ();
        cyl.renderer.material.color = colorPicker.currentColor;

        GameObject plane = GameObject.Find("GroundPlane");
        Paint circle = plane.GetComponent<Paint>();
        cylRadius = circle.radius / 35.0F;
        cyl.transform.localScale = new Vector3(cylRadius, 0.000000007F, cylRadius);
    }
}
```

Source: https://github.com/yoninachmany/cardboard-artboard
3. Growing Growth Mindset with a Social Robot Peer

- **Problem**: Promoting growth mindset in children to enhance their future academic, social and work achievements

- **Growth mindset**: The belief that success comes from effort and perseverance

- **Fixed mindset**: The belief that things cannot be changed

- **Solution**:
  - A social robot to play puzzle solving apps with children
  - The robot is programmed with AI algorithms to suggest growth mindset
  - To encourage children with phrases like “Try hard and you will succeed!”
3. Growing Growth Mindset with a Social Robot Peer

Source: