	TEAM: TEAM 5	
	Belgium	Ine Van Neste Yänka Delecluyse Lotte De Coster
Smartphone-accelerations into physics situations	Italy	Bianca Casalani Elena Atzeni
EXPERIMENT: Centrifugal acceleration		

1. ORIENTATION

Our experiment is that we will put a phone on a rotary device and let it spin, you will have to put the phone on different spaces on the rotary device. We want to measure how the velocity and the acceleration changes and if the angular velocity or the centrifugal acceleration changes.

1.1. Research question:

How does the velocity and the acceleration change when we measure from different distances from the center of the rotary device (=change radius)?

1.2. Hypothesis

When you put your phone on different places on the rotary device, your radius will change. We think that the centrifugal acceleration will be smaller if the radius increases and that the velocity will become bigger when the radius increases. This is derived from the following formula: ac = v^2/r. The centrifugal acceleration is inversely proportional to the radius and the velocity is directly proportional to the radius. The angular velocity will not change, because it is independent of the position on the wheel.

2. PREPARATION

2.1. **Material**:

-Phone, with the app Phyphox

-rotary device

-person who spins the rotary device

-tape

-a ruler

2.2. **Method:**

- Place the phone on the rotary device
- And tape it on the device
- Let the rotary device spin and use the app ‘Phypox’ (https://phyphox.org/experiment/centrifugal-acceleration/ , this is the link to the experiment)
- press on the three points in the right upper corner and press on timed measurement.
- Delayed start 5s and duration experiment 10s.
- Press on start button and start spinning the rotary device for 15s.
- When you are ready press again on the three points and export the data to excel.
- Place the phone on another place on the rotary device.
- Spin again and measure again (explained above)
- Repeat this for a few times

3. DATA ANALYSIS and DISCUSSION

3.1. **Observations and Measurements**:

3.2. **Discussion:**

4. REFLECTION

4.1. **Conclusion**:

4.2. **Comparison** of the results of the different countries

4.3. **Reflection:**

5. REFERENCES