EN 1190 Engineering Design Project

<u>Analysis of the Project Idea - Mobile Phone Detector</u>

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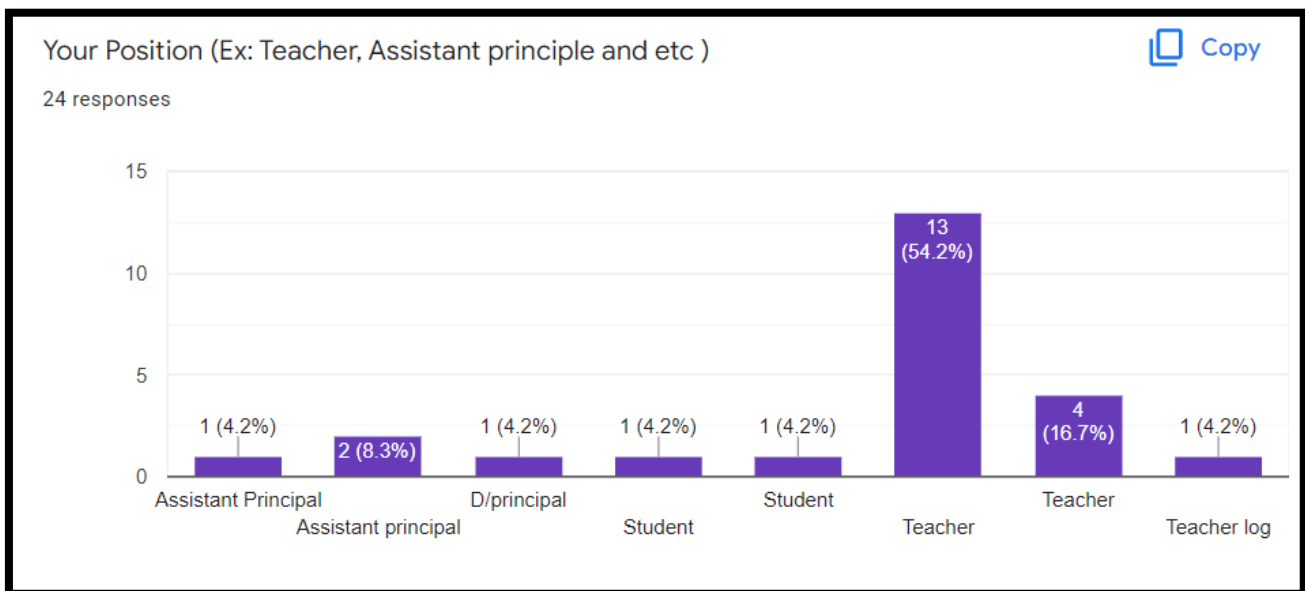WIJETUNGA W.L.N.K. (wijetungawlnk.20@uom.lk, 200733D)

More on Problem Identification

With the competitive examinations happening in Sri Lanka, students tend to cheat during examinations irrespective of the age. Earlier the common cheating methods were
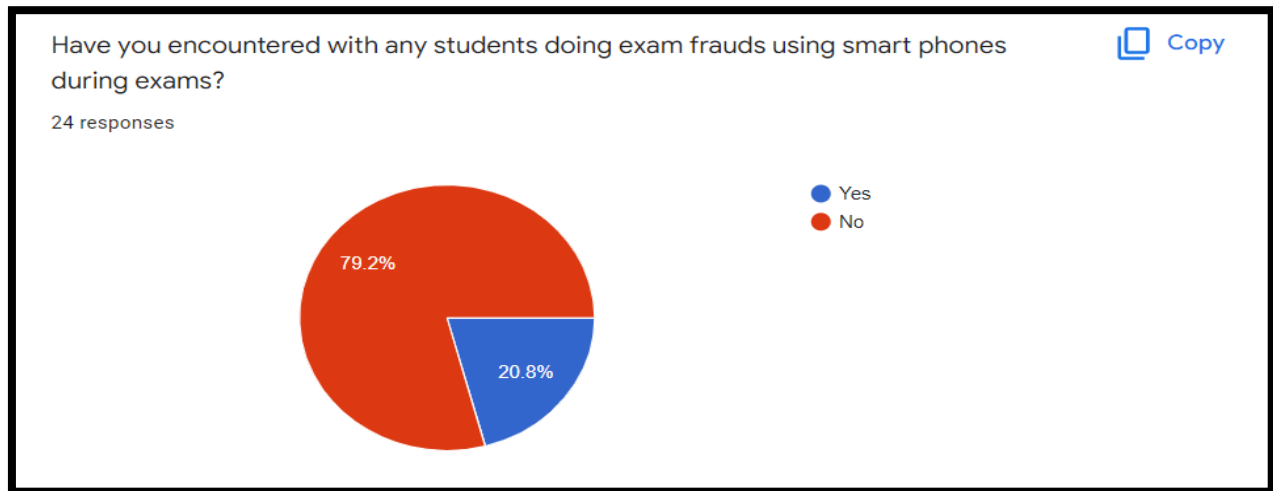
- Passing chits containing the answers
- Bringing already written notes to the examination hall
- Asking directly from a peer who is sitting next to him/her
- Leaving the examination hall

But today, with the improvement in technology and with the COVID – 19 pandemic situation, students tend to use electronic devices such as smart phones, laptops and personal computers more often to access the study materials and to attend classes through the internet. Their interaction with the smart phones increased rapidly and with that, students get to know more tips and tricks about smart phones. It led to another type of examination fraud, "Making examination frauds using smart phones".

This trend is still in the early stages at the examinations held at school. The following survey which was done in a school community proves the above fact.

Your Position (Ex: Teacher, Assistant principle and etc)

24 responses

Assistant Principal: 1 (4.2%)
Assistant principal: 2 (8.3%)
D/principal: 1 (4.2%)
Student: 1 (4.2%)
Student: 1 (4.2%)
Teacher: 13 (54.2%)
Teacher: 4 (16.7%)
Teacher log: 1 (4.2%)

Have you encountered with any students doing exam frauds using smart phones during exams?

24 responses

- Yes
- No

79.2%

20.8%

According to this survey, still the amount of exam frauds done using smart phones is quite less because examinations held at school are not cared by most of the students.

But when it comes to examinations like GCE Ordinary Level examination and Advanced Level examination, major exam frauds which include using electronic devices (Specially smart phones) during the examination were recorded in the recent examinations.

- ## A/L exam cheating via WhatsApp: Student detained
  Investigations have been launched into the actions of a teacher who had assisted a student in Mannar to answer a GCE Advanced Level Examination paper. The teacher is reported to have used WhatsApp to send answers to the student from the Madhu area in Mannar to answer the question paper.

  Source - https://www.newswire.lk/2022/02/17/a-l-exam-cheating-via-whatsapp-student-detained/

- ## Exam fraud: Lifetime ban imposed on A/L student
  A lifetime ban has been imposed on the student who was found guilty of leaking the GCE A/L Chemistry paper, from sitting any examinations held by the Examination Department, the department said.

  Source - https://www.dailymirror.lk/breaking_news/Exam-fraud-Lifetime-ban-imposed-on-A-L-student/108-135870

In a general point of view, if anyone cheat in exam, it is very unfair to the other students who are well prepared to the examinations. And education is the only way to develop their social state to proper state who are economically unstable. Therefore, exam cheating may cause to the destroy other's human rights. Our education system is globally recognized education system in the world. Therefore, exam cheating may cause to decrease that level. So, we must think about it deeply and must at least try to reduce them from our examination system. If not, clearly the victims will be the students of our country.

If we look at why students try to cheat during a major examination, there are few reasons. Here are the responses from the people who participated in the survey mentioned above.

> **If yes, in your opinion, why do you think students try to do so?**
>
> Because of the highly competitiveness of the ecam and as it decide their future
>
> To pass the exam
>
> To have a better result
>
> Lack of confidence, and as the exams decide everything.

Therefore, it is clear that some students have a clear motive to do exam frauds during the examinations and the tendency of bringing mobile phones to the examination halls will increase.

In (Martin et al., 2020), it has been shown that the online learning publications are continuously being increased from 2009 to 2018, and one of the leading research themes is course assessment. Course assessment is very challenging in online learning due to the lack of direct control over students and educators.

Although a considerable number of literature reviews exist about online learning, there is no such review study to provide comprehensive insight into cheating motivations, cheating types, cheating detection, and cheating prevention in the online setting.

- According to a research analysis on cheating of cellphone-based cheating on entrance exams by Hiroko Kanoh (Yamagata University, Japan),

  - Finding out one's own answers by searching via the internet using a cellphone has an average of 9.45 out of 10.
  - Send spoofing e-mails has an average of 8.27 out of 10.

Technological advances and online learning have enhanced education; however, they also have facilitated cheating in courses (Turner & Uludag, 2013). For instance, an examinee could use a mobile phone to text someone to get the answer. Although this would be difficult in the exam hall, some examinees could text without looking at their mobile phones. Applying scientific calculators, Mp3 players calculator, and wireless equipment such as an earphone and a microphone are other tools that facilitate cheating in offline exams (Curran et al., 2011).
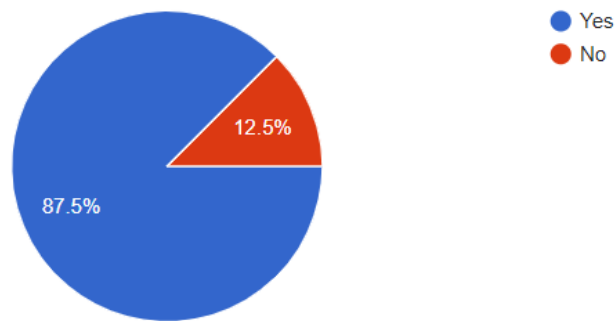
Motivation

Most of the examinations held by the department of examinations Sri Lanka are held at classrooms at government schools which do not have detectors to detect any switched-on mobile phones. It is obvious that with the current monetary crisis in the country, and with the high price of the mobile phone detectors in the market schools cannot afford to buy such detectors. And, if they want to buy them, they need higher number of units to be installed in every classroom.

Does it be useful if a mobile phone detector is fitted in the entrance of a classroom and detect any switched on mobile phone?

24 responses

- Yes
- No

87.5%

12.5%

From the survey mentioned above, the majority of the school community request to have a mobile phone detector at the examination halls (classrooms in this case) although they have not encountered it that much in the school term test examinations.

So, we thought of making a reliable yet a cost-effective mobile phone detector which is affordable for everyone.

Refined Product Overview

The product that we are going to develop is a mobile phone detector which can be fitted to the entrance of the examination hall (Classrooms here in this case) so when people enter the premise one at a time, if anyone carries a switched-on mobile phone, it is detected, and a warning sound is produced. The detector will capture the waves in the bandwidth in which the smart phone is communicating with the base station and with noise reductions and amplifying, the signal will be identified.

As a rating for this product, we would like to offer 7 out of 10 because the mobile phone should be switched on in order to be detected by this detector and this will work in a short radius of distance.