

Modern Topics in IT – IT4020

4th Year – 1st Semester

Assignment 03 - Report

(Augmented Reality)

Submitted to

Sri Lanka Institute of Information Technology

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Table of Content

♦ Contribution.....	3
♦ Screenshots of Individual Applications & Final Application.....	4
– IT18152760.....	4
– IT18085372.....	5
– IT18107692.....	6
– IT18084382.....	7
– Final Application	8
♦ Codes of Individual Applications & Final Application.....	9
– IT18152760.....	9
– IT18085372.....	10
– IT18107692.....	11
– IT18084382.....	12
– Final Application	13
♦ Small write-up about the real-life problem.....	14
♦ Appendix A - Markers	15

♦ **Contribution**

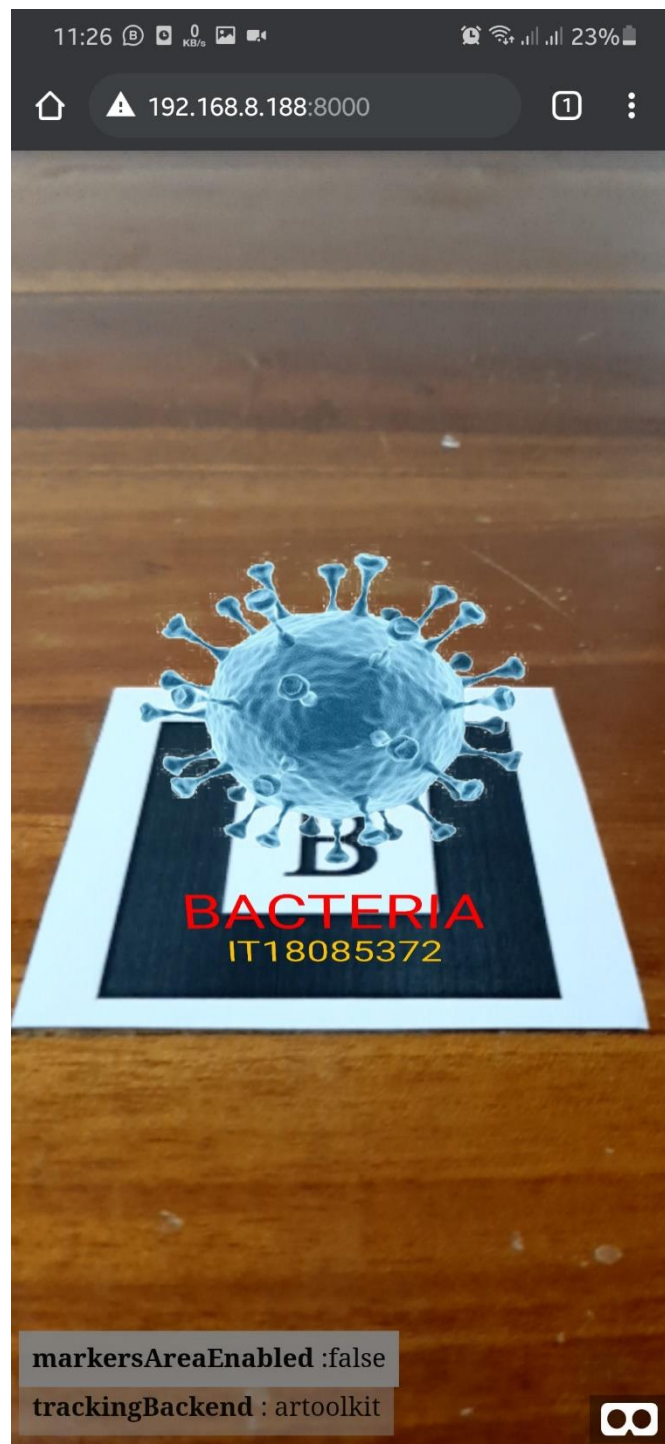
IT Number	Name	Contribution
IT18152760	Geethan Maduranga Perera L.	<ul style="list-style-type: none"> • Develop Simple AR App. • Create own marker. • Download source & texture files for own artifact. • Display 3D artifact by using augmented reality concepts. • Create individual application and the report.
IT18085372	V.K. Maheswaran	<ul style="list-style-type: none"> • Develop Simple AR App. • Create own marker. • Download source & texture files for own artifact. • Display 3D artifact by using augmented reality concepts. • Create individual application and the report.
IT18107692	N.K. Madanayake	<ul style="list-style-type: none"> • Develop Simple AR App. • Create own marker. • Download source & texture files for own artifact. • Display 3D artifact by using augmented reality concepts. • Create individual application and the report.
IT18084382	Devaka P.K.K.	<ul style="list-style-type: none"> • Develop Simple AR App. • Create own marker. • Download source & texture files for own artifact. • Display 3D artifact by using augmented reality concepts. • Create individual application and the report.

♦ **Screenshots of Individual Applications & Final Application**

– **IT18152760**



– IT18085372



– IT18107692



– IT18084382



– Final Application



◆ Codes of Individual Applications & Final Application

– IT18152760

```
IT18152760.html X
App > IT18152760.html > ...
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5    <!-- include A-Frame obviously -->
6    <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
7    <!-- include ar.js for A-Frame -->
8    <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
9  </head>
10
11  <body style='margin : 0px; overflow: hidden;'>
12
13    <a-scene embedded arjs>
14
15      <!-- IT18152760 -->
16      <a-marker type='pattern' url='patterns/pattern-a.patt">
17        <a-image id="algae" src="models/algae.png" position="0 0 -0.5" rotation="0 0 0" scale="1.3 1.3 1.3"></a-image>
18        <a-text align="center" value="ALGAE" rotation="0 0 0" position="0 -0.4 -0.2" scale="0.8 0.8 0.8" color="red"></a-text>
19        <a-text align="center" value="IT18152760" rotation="0 0 0" position="0 -0.55 -0.2" scale="0.5 0.5 0.5" color="#ffc300"></a-text>
20      </a-marker>
21
22      <a-entity camera></a-entity>
23    </a-scene>
24  </body>
25
26 </html>
```

– IT18085372

```
IT18085372.html X
App > IT18085372.html > ...
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5    <!-- include A-Frame obviously -->
6    <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
7    <!-- include ar.js for A-Frame -->
8    <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
9  </head>
10
11  <body style='margin : 0px; overflow: hidden;'>
12
13    <a-scene embedded arjs>
14
15      <!-- IT18085372 -->
16      <a-marker type='pattern' url='patterns/pattern-b.patt'>
17        <a-image id='bacteria' src='models/bacteria.png' position='0 0 -0.5' rotation='0 0 0' scale='1.1 1.1 1.1'></a-image>
18        <a-text align='center' value='BACTERIA' rotation='0 0 0' position='0 -0.4 -0.2' scale='0.8 0.8 0.8' color='red'></a-text>
19        <a-text align='center' value='IT18085372' rotation='0 0 0' position='0 -0.55 -0.2' scale='0.5 0.5 0.5' color='fffc300'></a-text>
20      </a-marker>
21
22      <a-entity camera></a-entity>
23
24    </a-scene>
25
26  </body>
27
28 </html>
```

– IT18107692

```
IT18107692.html X
App > IT18107692.html > ...
1 <!DOCTYPE html>
2 <html>
3
4 <head>
5 <!-- include A-Frame obviously -->
6 <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
7 <!-- include ar.js for A-Frame -->
8 <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
9 </head>
10
11 <body style='margin : 0px; overflow: hidden;'>
12
13 <a-scene embedded arjs>
14
15 <!--IT18107692-->
16 <a-marker type='pattern' url='patterns/pattern-c.patt">
17 <a-image id='fungi' src='models/fungi.png' position='0 0 -0.5' rotation='0 0 0' scale='0.9 0.9 0.9'></a-image>
18 <a-text align='center' value='FUNGI' rotation='0 0 0' position='0 -0.4 -0.2' scale='0.8 0.8 0.8' color='red'></a-text>
19 <a-text align='center' value='IT18107692' rotation='0 0 0' position='0 -0.55 -0.2' scale='0.5 0.5 0.5' color='#ffc300'></a-text>
20 </a-marker>
21
22 <a-entity camera></a-entity>
23
24 </a-scene>
25
26 </body>
27
28 </html>
```

– IT18084382

```
IT18084382.html X
App > IT18084382.html > ...
1  <!DOCTYPE html>
2  <html>
3
4    <head>
5      <!-- include A-Frame obviously -->
6      <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
7      <!-- include ar.js for A-Frame -->
8      <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
9    </head>
10
11    <body style="margin : 0px; overflow: hidden;">
12
13      <a-scene embedded arjs>
14
15        <!--IT18084382-->
16        <a-marker type='pattern' url="patterns/pattern-d.patt">
17          <a-image id="virus" src="models/virus.png" position="0 0 -0.5" rotation="0 0 0" scale="1.2 1.2 1.2"></a-image>
18          <a-text align="center" value="VIRUS" rotation="0 0 0" position="0 -0.4 -0.2" scale="0.8 0.8 0.8" color="red"></a-text>
19          <a-text align="center" value="IT18084382" rotation="0 0 0" position="0 -0.55 -0.2" scale="0.5 0.5 0.5" color="#ffc300"></a-text>
20        </a-marker>
21
22        <a-entity camera></a-entity>
23
24      </a-scene>
25
26    </body>
27
28  </html>
```

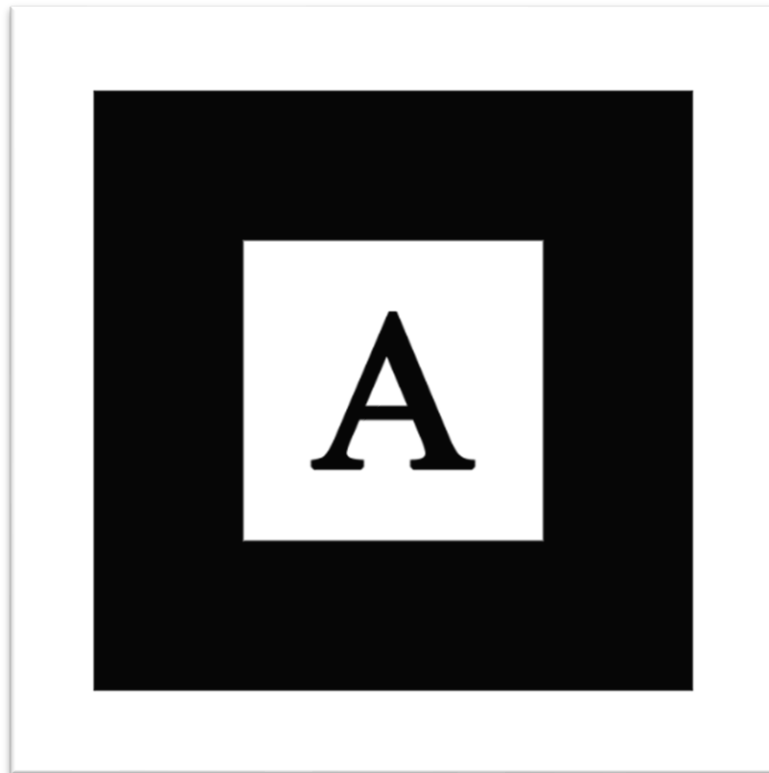
– Final Application

```
index.html X
App > < index.html > ...
1 <!DOCTYPE html>
2 <html>
3
4 <head>
5 <!-- include A-Frame obviously -->
6 <script src="https://aframe.io/releases/0.6.0/aframe.min.js"></script>
7 <!-- include ar.js for A-Frame -->
8 <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
9 </head>
10
11 <body style='margin : 0px; overflow: hidden;'>
12
13 <a-scene embedded arjs>
14
15 <!--IT18152760-->
16 <a-marker type='pattern' url='patterns/pattern-a.patt">
17 <a-image id="algae" src="models/algae.png" position="0 0 -0.5" rotation="0 0 0" scale="1.3 1.3 1.3"></a-image>
18 <a-text align="center" value="ALGAE" rotation="0 0 0" position="0 -0.4 -0.2" scale="0.8 0.8 0.8" color="red"></a-text>
19 <a-text align="center" value="IT18152760" rotation="0 0 0" position="0 -0.55 -0.2" scale="0.5 0.5 0.5" color="#ffc300"></a-text>
20 </a-marker>
21
22 <!--IT18085372-->
23 <a-marker type='pattern' url='patterns/pattern-b.patt">
24 <a-image id="bacteria" src="models/bacteria.png" position="0 0 -0.5" rotation="0 0 0" scale="1.1 1.1 1.1"></a-image>
25 <a-text align="center" value="BACTERIA" rotation="0 0 0" position="0 -0.4 -0.2" scale="0.8 0.8 0.8" color="red"></a-text>
26 <a-text align="center" value="IT18085372" rotation="0 0 0" position="0 -0.55 -0.2" scale="0.5 0.5 0.5" color="#ffc300"></a-text>
27 </a-marker>
28
29 <!--IT18107692-->
30 <a-marker type='pattern' url='patterns/pattern-c.patt">
31 <a-image id="fungi" src="models/fungi.png" position="0 0 -0.5" rotation="0 0 0" scale="0.9 0.9 0.9"></a-image>
32 <a-text align="center" value="FUNGI" rotation="0 0 0" position="0 -0.4 -0.2" scale="0.8 0.8 0.8" color="red"></a-text>
33 <a-text align="center" value="IT18107692" rotation="0 0 0" position="0 -0.55 -0.2" scale="0.5 0.5 0.5" color="#ffc300"></a-text>
34 </a-marker>
35
36 <!--IT18084382-->
37 <a-marker type='pattern' url='patterns/pattern-d.patt">
38 <a-image id="virus" src="models/virus.png" position="0 0 -0.5" rotation="0 0 0" scale="1.2 1.2 1.2"></a-image>
39 <a-text align="center" value="VIRUS" rotation="0 0 0" position="0 -0.4 -0.2" scale="0.8 0.8 0.8" color="red"></a-text>
40 <a-text align="center" value="IT18084382" rotation="0 0 0" position="0 -0.55 -0.2" scale="0.5 0.5 0.5" color="#ffc300"></a-text>
41 </a-marker>
42
43 <a-entity camera></a-entity>
44
45 </a-scene>
46
47 </body>
48
49 </html>
```

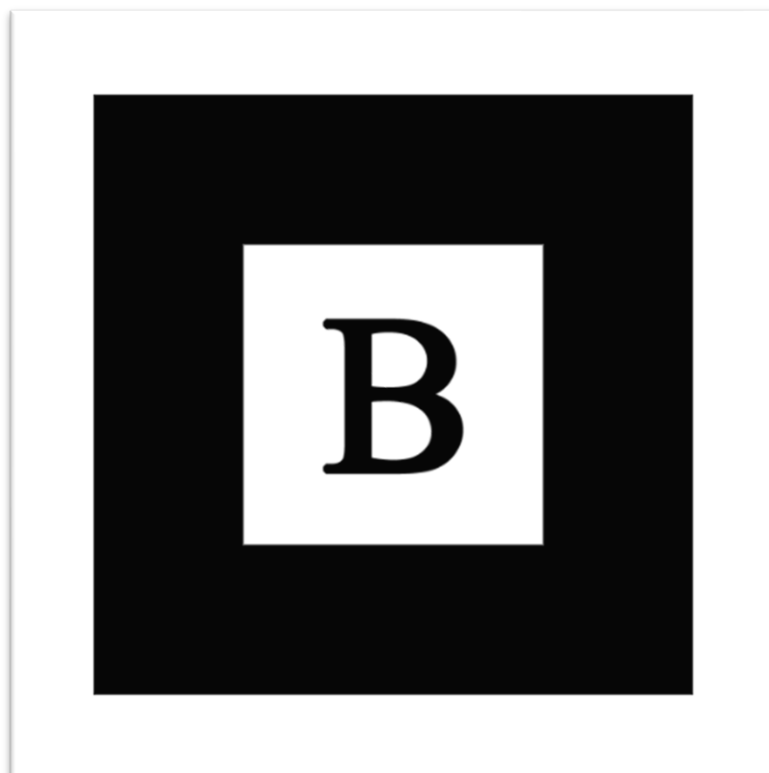
♦ **Small write-up about the real-life problem**

Micro-organisms and their activities are vitally important to virtually all processes on Earth. Micro-organisms matter because they affect every aspect of our lives – they are in us, on us and around us. The study of all living organisms that are too small to be seen with the naked eye is known as microbiology. Bacteria, archaea, viruses, fungi, prions, protozoa, and algae are all examples of microbes. These microbes are important in nutrient cycling, biodegradation/biodeterioration, climate change, food spoilage, disease causation and control, and biotechnology. Microbes can be used in a variety of ways, including the production of life-saving drugs, the production of biofuels, the removal of pollution, and the production/processing of food and drink. The main issue that students face when studying about micro-organisms is that they cannot see it live every time. There are many pictures regarding micro-organisms on the internet, but there is a lack in the inspections. To address this issue, we can use some 3D models of micro-organisms and use Augmented Reality technology to create some markers to scan. Anyone who needs to study about micro-organisms can simply scan the marker and see the 3D view of the micro-organisms with a realistic experience and it will enhance their learning abilities.

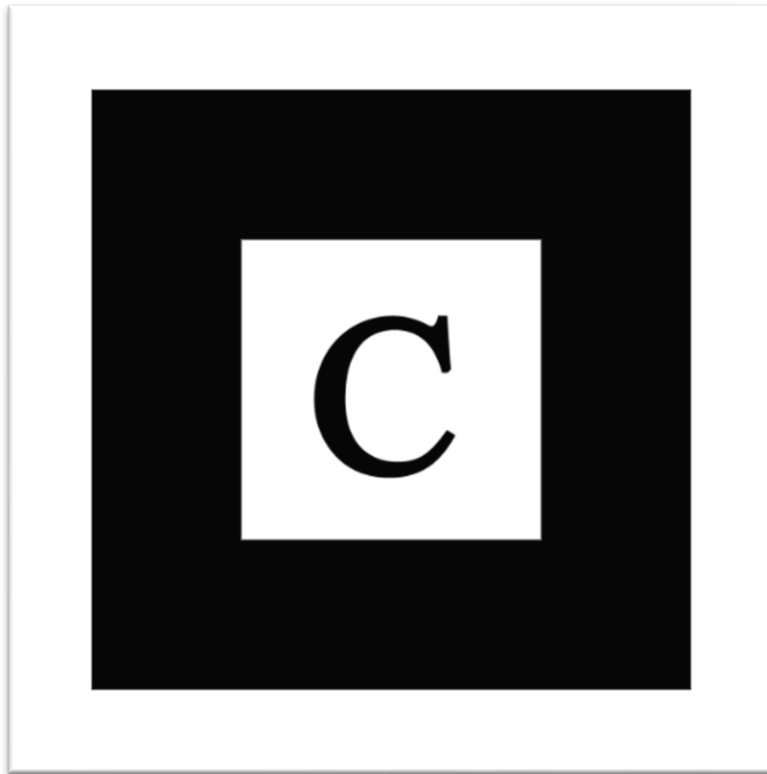
♦ **Appendix A - Markers**



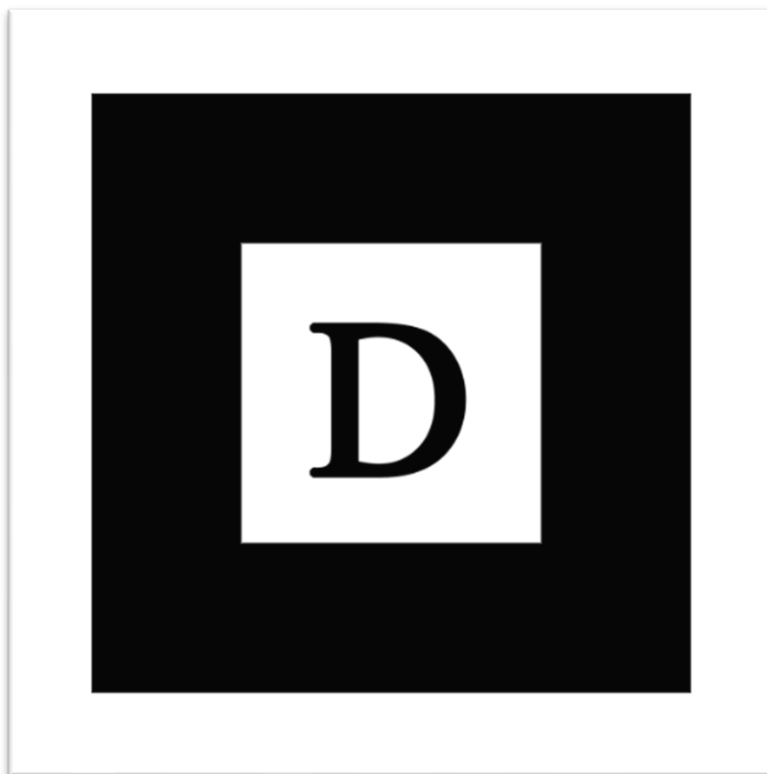
IT18152760



IT18085372



IT18107692



IT18084382