PROJECT PROPOSAL OF IDP

PROJECT NAME: **SMART VENDING MACHINE**

COURSE NAME: **INTEGRATED DESIGN PROJECT-01**
COURSE CODE: **CSE-360**

GROUP: **JULIETT (09)**
SEC: **A**

GROUP MEMBERS:

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MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY

Department of Computer Science and Engineering

Project Proposal of IDP

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Date: September 5, 2020

1. **Group No: 09 (Juliet)**

2. **Section: sec-A** **Session**: 2017-18

3. **Program: CSE - 18**

4. **Tentative Title**: **SMART VENDING MACHINE**

5. **Background and Present State of the Problem**:

The prevailing vending machines in our country can detect money exactly like the image delivered. They cannot detect if any cash is deformed or discolored which is why, sometimes they accept cash but the product may not be successfully purchased. Moreover, using cash and coins to buy stuffs is not quite safe when any pandemic breaks. That's why, this idea of buying a product from vending machine using an app in mobile phone (where the information of a credit or debit card will be used for purchase) is proposed. The customer's phone and the vending machine will be connected by Bluetooth within a certain distance.

6. **Objectives with Specific Aims and Possible Outcome**:

- Successful purchase of products from a vending machine
- Using BLUETOOTH and an app to connect with a vending machine to make the process quick
- More use of credit or debit card to reduce the cash transactions in any urgent situation i.e., pandemic, war etc.
- To lessen crowds in markets and shops by setting up vending machines in local areas
- To show a simulation on how vending machines can be controlled remotely using BLUETOOTH

7. **Outline of Methodology/Experimental Design**:

- A mini vending machine will be used as a model in this project.
- Bluetooth module will be used to connect the vending machine with a mobile and to send signals to the vending machine. Motor controllers may be used to function the vending machine according to the option.
- A name will be given to the vending machine as a BLUETOOTH device
- Arduino uno or Arduino mega maybe used to control the choice of selection in the vending machine
- An app will be developed in a convenient Android app development environment
- Purchase will be done from the information of the customer's credit or debit card information
- Transaction will be done as soon as the product will be received from the vending machine
- The plan to develop the mobile app:
  - In the app, an account can be created to sign in by providing username, password and necessary information of credit or debit card by a user
  - After signing in, the app will show the available BLUETOOTH devices within a certain distance
  - If the vending machine name appears on screen then the user will be able to connect his phone to the vending machine
  - Next, there will be a page where there will be options of products, fixed in vending machine. After connecting to the vending machine, the user can select the option which one he would like to buy in that page
  - After that there will be a pop up if the user wants to buy another thing
  - After fixing the option, the vending machine will get signals to drop the certain product
  - If the product is dropped successfully, then the app will request the user to fetch the item
  - As soon as the product is fetched the item will be purchased automatically using the user's card information.
- Load sensor may be used to detect if the product is dropped or not
- Proximity sensor maybe used to detect if the product has been taken by the customer
- A user will be able to install the app from Google play store

8. **Please select the covered domain of your project (At least 04 or you can add any other domain(s) that is not included in the following list)**

☐Theoretical CS and Algorithms	☐Information Security
☐Networking	☐Computer Vision
☒Database	☐Pattern Recognition
☐Cloud Computing and Big Data	☒Internet of Things (IoT)
☒Robotics	☒Human Computer Interactions (HCI)

9. **References**:

1) https://en.wikipedia.org/wiki/Vending_machine
2) https://www.dhakatribune.com/bangladesh/dhaka/2019/12/02/sanitary-pad-vending-machines-at-du
3) http://thisbeautifuldayblog.com/crazy-japanese-vending-machines/#
4) https://www.businessinsider.com/why-so-many-vending-machines-in-japan-2017-1
5) https://singaporeguidebook.com/en/6-unique-vending-machine-in-singapore/

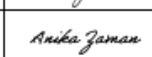
10. **Cost Estimate**: (Breakdown can be provided in separate sheet if necessary)

Ser No	**Items**	**Cost (Taka)**
1	Cost of Equipment (mini vending machine + other equipment mentioned earlier)	40000/-
2	Field works (if applicable)	5000/-
3	Conveyance / Data Collection (with breakdown)	
4	Typing, Drafting, Binding and Paper etc.	1000/-
Total Amount		46000/-

11. **Market Analysis**:

Project Name	**Features**			
	IoT(Remote Access Compatibility)	Robotics	Access to Database	Human Computer Interaction (Using mobile app)
Food and snack vending machine	X	√	X	X
Freedom vending machine	X	√	X	X
Smart Vending Machine	√	√	√	√

Signature of the group members:

Serial No	Student ID	Name	Email	Signature
01.	201814014	Pratyusha Kundu	pkdroide@gmail.com	
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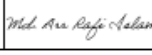
04.	201814050	Md. Arr Rafi Islam	arrrafi24@gmail.com	

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Signature of the Course Teachers