

**Project Deliverable 2**  
**Smart Prosthetic Arm**  
**Hybrid Prosthetics™**

Prepared for:

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CENG 322 - CENG 317




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## Project Scope

The focus of this project is a synthetic arm meant to benefit disabled individuals. This arm will have many functions, including temperature measurement, object detection, rotational axes (servos) and supports bluetooth/wireless connection. These functionalities will all be displayed to an app for the user to get all the information and control necessary to help with their everyday lives.

Name	Id	Signature	Effort
Samad Agha	n01364908		100%
Kevin Santizo	n01382533		100%
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Henry To	n01365792	Henry	100%
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## Github Repo

<https://github.com/KevinSantizo2533/SmartProstheticArm>


## Github Invites:


### Manage access

Add people


☐ Select all Type ▾


☐

**AustinCENG**  
Collaborator



☐

**Hak11**  
haki11 • Collaborator



# Business Model Canvas:

<b>Business Model Canvas</b>		<i>Designed for:</i> Smart Prosthetic Arm	<i>Designed by:</i> Hybrid Prosthetics	<i>Date:</i> October 11,2021	<i>Version:</i> 1
<b>Key Partners</b> <ul style="list-style-type: none"><li>• Humber</li><li>• Hospitals</li><li>• Insurance Company</li><li>• Parts Crib</li><li>• Charities</li></ul>	<b>Key Activities</b> <ul style="list-style-type: none"><li>• Software development and maintenance</li><li>• Branch out to more prosthetic devices</li><li>• Sponsorships from companies</li></ul> <b>Key Resources</b> <ul style="list-style-type: none"><li>• Software developers and engineers</li><li>• Physical</li><li>• Intelluctual</li></ul>	<b>Value Propositions</b> <ul style="list-style-type: none"><li>• User friendly app interface</li><li>• Help make the lives of PWDs easier</li><li>• Cost Reduction</li><li>• Performance</li><li>• Convenient</li><li>• Price</li></ul>	<b>Customer Relationships</b> <ul style="list-style-type: none"><li>• 24/7 Customer support (Live Chat or over the phone)</li><li>• Fixing bug reports</li><li>• FAQ section on website</li><li>• </li></ul> <b>Channels</b> <ul style="list-style-type: none"><li>• Google Play</li><li>• Email</li><li>• Social Media</li><li>• Telephone</li><li>• TV Commercials</li></ul>	<b>Customer Segments</b> <ul style="list-style-type: none"><li>• People / Persons with disabilities (PWDs)</li><li>• Amputees</li><li>• </li></ul>	
<b>Cost Structure</b> <ul style="list-style-type: none"><li>• Platform maintenance and development</li><li>• </li></ul>			<b>Revenue Streams</b> <ul style="list-style-type: none"><li>• Product will be priced from \$150-\$300</li><li>• App will have an option for monthly subscription (premium) for benefits</li><li>• We will allow pharmaceutical companies to lease the product in bulk (50 or 100/lot)</li><li>• Sponsored by healthcare companies, hospitals, etc</li></ul>		

# Firebase Creation:

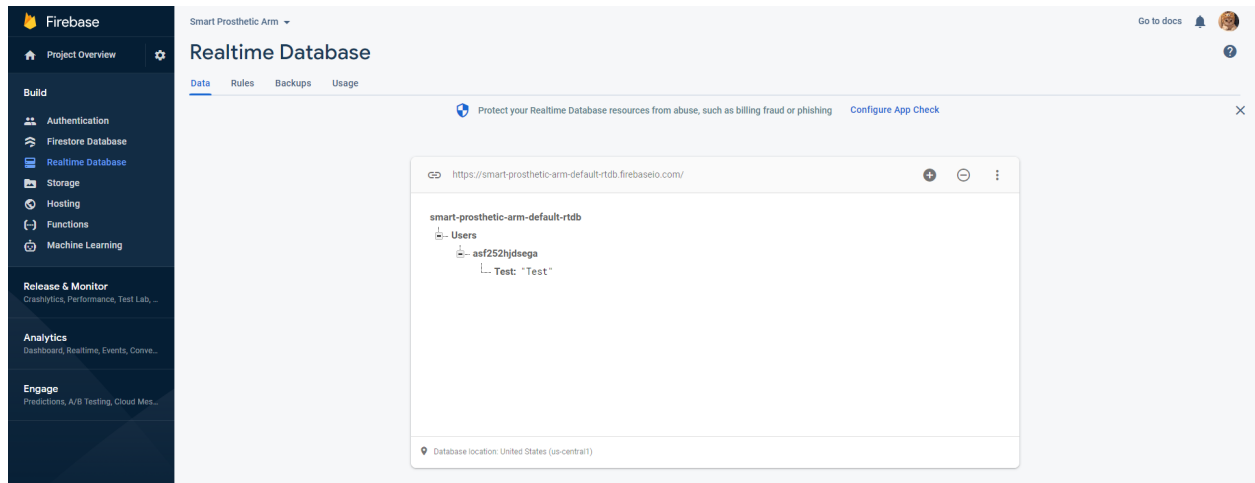
This screenshot shows the 'Users' tab in the Firebase Authentication console. The left sidebar contains navigation links for Project Overview, Build (Authentication, Firestore Database, Realtime Database, Storage, Hosting, Functions, Machine Learning), Release & Monitor, Analytics, Engage, and Extensions. The main content area has tabs for Users, Sign-in method, Templates, and Usage. A search bar at the top allows searching by email address, phone number, or user UID. Below the search bar is a table with columns: Identifier, Providers, Created, Signed In, and User UID. One user is listed with the email 'testuser@gmail.com' and a creation date of 'Oct 12, 2021'. The User UID is 'L4vj6XK1ORegm6NCsfEKY4nZ33'. At the bottom right of the table, it shows 'Rows per page: 50' and '1 - 1 of 1'.

Identifier	Providers	Created	Signed In	User UID
testuser@gmail.com		Oct 12, 2021		L4vj6XK1ORegm6NCsfEKY4nZ33

This screenshot shows the 'Sign-in method' tab in the Firebase Authentication console. The left sidebar is identical to the previous screenshot. The main content area has tabs for Users, Sign-in method, Templates, and Usage. Under the 'Sign-in providers' section, there is a table with columns 'Provider' and 'Status'. One provider is listed: 'Email/Password' with a status of 'Enabled'. Below this, the 'Authorized domains' section shows a table with columns 'Authorized domain' and 'Type'. Three domains are listed: 'localhost', 'smart-prosthetic-arm.firebaseio.com', and 'smart-prosthetic-arm.web.app', all with a type of 'Default'. At the bottom, the 'Advanced' section contains a warning: 'One account per email address' with a 'Change' button.

Provider	Status
Email/Password	Enabled

Authorized domain	Type
localhost	Default
smart-prosthetic-arm.firebaseio.com	Default
smart-prosthetic-arm.web.app	Default




## Progress Since 1st Deliverable:



- Added Login Screen
- Added Register Screen
- Added Forgot Pass
- Added firebase
- Added error on click for invalid text in login register
- Added several button redirects
- Added splash screen with icon
- Added bluetooth runtime permission
- Added Consistent backgrounds colours fonts
- Added Realtime Database
- Added menu items with icons
- Added setting screen options
- Change username
- Bug Report
- Added several images
- Added snackbar after runtime permission
- Added landscape
- Added French Strings
- Added redirects to sensor screen
- Added status screen


# Stand-up Records:

Discord was used for daily standups up until October 11th(Switched to Friday).

 Daily Standups

[Edit](#) [Report](#)

 Alex R 3 minutes ago 


 Daily Standups



What did you accomplish yesterday?



Started work on business model canvas


What's the most important thing you aim to accomplish today?

Finishing the business model canvas and handing in Deliverable 2.



 Add a comment 

 Kevin Santizo 3 minutes ago (edited) • [Edit](#) 

 Daily Standups

What did you accomplish yesterday?

Sensor fragment along with the temperature and ultrasonic screens are now fully completed.

What's the most important thing you aim to accomplish today?

Finish Deliverable 2 PDF and submit.



Samad Agha

Daily Standups

11 minutes ago • [Edit](#) :

What did you accomplish yesterday?

[Updated Register Activity](#)

- Added setError for isEmpty text fields
- Fixed constraints for Login Activity
- Removed unnecessary code for Register null
- Renamed a couple variables for RegisterLayout
- Connected firebase
- Defined firebase and implementation in Register
- Re-adjusted Forgot activity constraints

[Added Class User with Realtime DB](#)

[Fixed formatting of Forgot Activity](#)

What's the most important thing you aim to accomplish today?

Implementing Firebase

Anything else you'd like to share?

Adjusted constraints designs and layouts





a minute ago • [Edit](#) [⋮](#)

deliverable 2 screens

## Finishing deliverable 2

[https://kevinsantizo.monday.com/users/sign\\_up?invitationId=16554461040520670000](https://kevinsantizo.monday.com/users/sign_up?invitationId=16554461040520670000)

Sprint 2 (Oct. 1 - 8) - Epic: Interface for sensors		Subitem...	Person	Status	Date	
Sensors screen(temperature, ultrasonic information)		+ i s	K3 AB	Working on it	Oct 12	
Subitems	Owner	Status	Start Date	End Date	T-Shirt Size	
Image buttons to redirect user to their ...		Done	Oct 3	Oct 4	S	
Create temperature and ultrasensor scr...		Done	Oct 4	Oct 5	S	
Add logic to communicate with sensors		Working on it	Oct 4	Oct 5	L	
Create onClick methods in sensors fra...		Done	Oct 4	Oct 5	M	
Layouts for the ultrasonic and temper...		Done	Oct 4	Oct 5	S	
Button(layout) to retrieve temperature/...		Done	Oct 5	Oct 8	M	
Unique styles for objects within those ...		Done	Oct 5	Oct 8	S	
Button functionality to retrieve reading...		Working on it	Oct 5	Oct 8	L	
+ Add Subitem						

### 🔴 Sprint 3 (Oct 4 - 15) - Epic: Improve Login

Validate Login/Register							Subite...	Person	Status	Date	⊕
							6	SA +2	Working on it		
Subitems	Owner	Status	Start Date	End Date	T-Shirt Size	⊕					
connection to firebase		Done	Oct 4	Oct 8	L						
store user/pass to Firebase on register		Ready	Oct 4	Oct 8	L						
Display login success with Toast		Done	Oct 6	Oct 8	S						
Display error if blank/invalid input		Working on it	Oct 6	Oct 8	S						
Encrypt password to Firebase			Oct 8	Oct 15	M						
Send email for Forgot Password			Oct 8	Oct 15	M						
+ Add Subitem											
+ Add											

### 🔵 Sprint 4: Send/Retrieve sensor data

Bluetooth Screen							Subite...	Person	Status	Date	⊕
							5	AR +3	Working on it		
Subitems	Owner	Status	Start Date	End Date	T-Shirt Size	⊕					
implement bluetooth adapter		Ready	Oct 12		L						
add connectivity function			Oct 12								
Retrieve information from servos		Working on it	Oct 12		L						
Send data to servos		Working on it	Oct 12		M						
display data on app (temperature)		Working on it	Oct 12		M						
+ Add Subitem											
+ Add											

### 🔴 Sprint 5: (Oct 5 - 10) Settings/Preferences

Settings Screen							Subite...	Person	Status	Date	⊕
							5	KS SA	Working on it		
Subitems	Owner	Status	Start Date	End Date	T-Shirt Size	⊕					
Setup settings fragment/root_preferen...		Done	Oct 1	Oct 1	S						
Add screen orientation customization(...		Working on it	Oct 2	Oct 2	S						
Add language preference(French/Engl...		Working on it	Oct 3	Oct 4	M						
Customizable user profile		Working on it	Oct 4	Oct 4	M						
Add notifications switch button(on/off)		Working on it	Oct 11	Oct 12	M						
+ Add Subitem											

## Task Completion (in reference to DoD Criteria):

- ✓ Following the "Definition of Done" checklist:
- ✓ Reviewed team members code
- ✓ Ran each commit through members before committing
- ✓ Code Reviews Conducted
- ✓ Updated Members on upcoming changes
- ✓ Checked for Errors on compiling
- ✓ Noted any sort of warnings