DIGINOV
DIGITAL INNOVATION

DIGINOV
Graduation
Projects Catalog
2020

“Our vision is to grow up as a family and as a Company.”

Diginov Team

01 ABOUT US

Digital Innovation is established by a group of ambitious youth, with local national expertise, to assist in the transfer of knowledge and adopting best practices in the fields of technology, Digital Transformation & Automation, security, professional practice, R&D and applied sciences as well as to provide solutions and applications including IoT (internet of things).

Last but not least, we have the capacity and expertise to be the system integrator for innovative shared government services.

02 OUR SERVICES

Mobile

Our main focus when it comes to mobile is to provide robustness and tolerance to applications.

WEB

What could be more important than responsive and light web apps that can looks perfect on all browsers.

ERP

Our work is user-centric. We identify objectives, resources, and risks, then we build solutions bas hem.

BI

Encompasses a wide variety of tools, applications and methodologies that enable organi-zations to collect data from internal systems and external sources.

Robotic

Our R&D team works on exploring new ideas, designing concepts, optimi-zing, real world simulations, & implementing.

03 How We Do It

DESIGN

We work on understanding the project and then design the concept, the interface, the interaction, and the architecture of the product.

IMPLEMENT

We help our clients in implementing solutions into their existing systems. It guarantees a homogeneous functioning between different system components.

DEVELOP

After the design process, we start working on code, testing and debugging.

TEST & QUALITY

The process of evaluating a system or its component(s) with the intent to find whether it satisfies the specified requirements or not.

MAINTENANCE

we ensure the maintenance of our projects after delivery.

SUPPORT

We give support regarding our solutions. We upgrade in regards to the change in our clients systems.

PROJECTS
2020

Entreprise

PROJECT 1 : Indoor Navigation for event's site

Duration: 4 – 6 Department : Web / Mobile

JOB DESCRIPTION :

Indoor navigation challenges are rising since ever. for that we decided to be part of the candidate will map an events' app basic feature and tackle indoor navigation for each site during the events, from displaying the events and sites list to guiding the user on how to reach these sites.

Responsable : Mohamed Ali Touati

Interns
1

Technologies

#Android, #iOS, #Web, #DB, #Map

PROJECT 2 : Augmented reality mobile app and web platform

Duration: 4 – 6 Department : Web / Mobile

JOB DESCRIPTION :

The user can install the mobile application to see a 3D building using Augmented Reality on a specific blueprint. The 3D objects and the blue-prints will be uploaded by architects or real estate companies through a web platform where he can manipulate the object for a better rendering in the mobile app.

Responsable : Seifallah Selmi

Interns
1

Technologies

Swift, Kotlin, ARKit, ARCore, REST API, JavaScript, Git

WEB

PROJECT 1 : A web platform for recruitment management and trainees follow up

Duration: 4 – 6 Department : Web

JOB DESCRIPTION :

Creating a web platform for recruitment management such as creating technical tests, keeping track of the results and interviews sum up. This platform will be also dedicated to follow up the trainees progress during their internship, gathering their presentations, their PFE books and giving the possibility to the responsable to give reviews.

Responsable : Nayrouz Boussoffara

Interns
1

Technologies

#Angular ,#Odoo, #Python, #WebServices
#Restfull, #Git, #Jasmine, #karma

PROJECT 2 : Design and development of a web application to automatically create a structure of a project with the desired architecture

Duration: 4 – 6 Department : Web

JOB DESCRIPTION :

Creating a web platform that gives the possibility to choose your project architecture, type , language, frameworks,modules... then generates the project accordingly Project folders will then contain all the needed files for the developper. Candidate will have to study project architecture to present them in the platform.

The purpose of this project is to set up the development environment automatically in the least amount of time possible.

Responsable : Nayrouz Boussoffara & Achref Souilem

Interns
1

Technologies

#Angular, #Devops, #WebServices, #Restfull, #Git

PROJECT 3 : Design and development of a web application to monitor patients health (Ainayati)

Duration: 4 – 6 Months Department : Web

JOB DESCRIPTION :

It’s a smart solution composed of backoffice and mobile app equipped with smart watch to monitor the general health indicators of a user. A uer whether an elderly that his guardian wants to check up on him now and then, a chronic disease patient that needs periodic checkups or simply a user monitoring day to day status can do check up and synchronize data with physician.

Responsable : Rafaa Ferid

Interns
1

Technologies

#ReactJS, #Laravel, #php, #blockchain
#WebServices, #Restfull, #Git

MOBILE

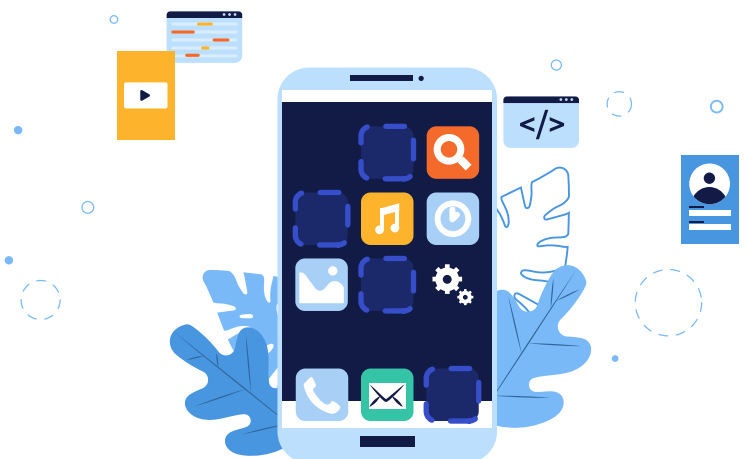
PROJECT 1 : Bibliophile App: KTEBI

Duration: 4 – 6 Department : Mobile

JOB DESCRIPTION :

A mini social network mobile app for bibliophile. Users can share, add and search for their preferred books. Users can also buy or exchange books and share relative events.

Responsable : Seifallah Selmi



Interns
1

Technologies

Kotlin, Swift, Firebase / Laravel, Live Chat, Git

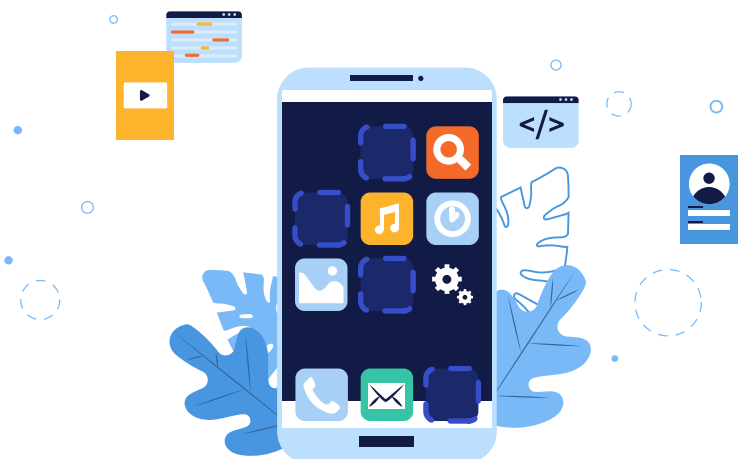
PROJECT 2 : 2D Game with voice recognition

Duration: 4 Months Department : Mobile

JOB DESCRIPTION :

A 2D game designed for people with sight disabilities, where they can go through the gaming experience using their voice for giving commands to complete the missions and get rewarded.

Responsable : Seifallah Selmi



Interns
1

Technologies

Unity, C#, Voice Recognition, Text-to-Speech, Git

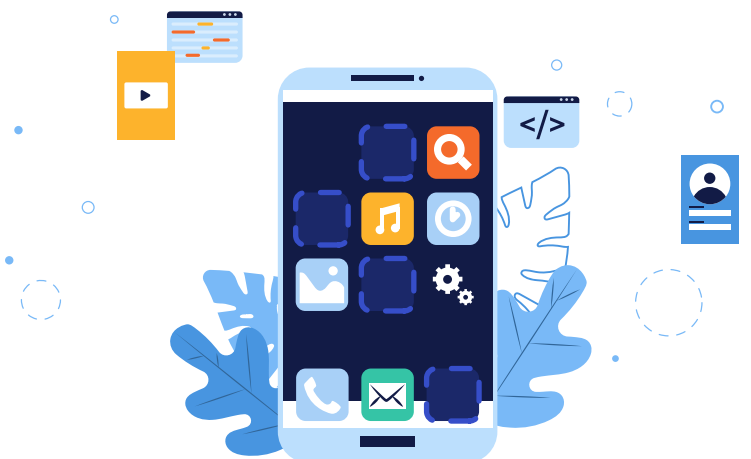
PROJECT 3 : Model/Photographer Freelance Platform

Duration: 4 Months Department : Mobile

JOB DESCRIPTION :

Platform for beginner or professional models. A modeling community, to lead the way nationally in connecting new faces (aspiring models) and professional models with reputable agencies, photographers, stylists and other industry clients.

Responsable : Seifallah Selmi



Interns
1

Technologies

Kotlin, Swift, REST API, Laravel, Git

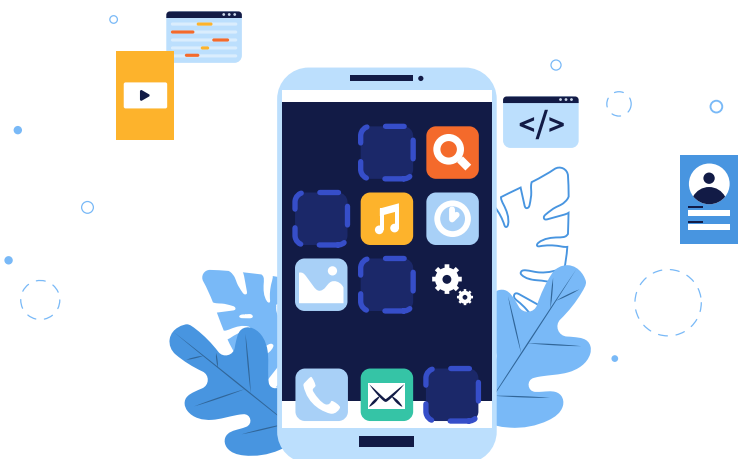
PROJECT 4 : Delivery mobile app

Duration: 4 Months Department : Mobile

JOB DESCRIPTION :

Platform for beginner or professional models. A modeling community, to lead the way nationally in connecting new faces (aspiring models) and professional models with reputable agencies, photographers, stylists and other industry clients.

Responsable : Seifallah Selmi



Interns
1

Technologies

Unity, C#, Voice Recognition, Text-to-Speech, Git

IOT

PROJECT 1 : Shipment tracking web application

Duration: 4 - 6 Months Department : Robotics / Web

Profile: Engineer in mechanics/mechatronics with excellent mechanical design background

JOB DESCRIPTION :

Creating a web platform for container tracking.Valuable informations such as location, temperature and departure / arrival updates should be saved and shared on blockchain technology.

The project consist of building a new customer relationship management tool to manage the company's interaction with current and potential customers

Responsable : Wael Golli

Interns
1

Technologies

Hyperledger composer , Front end tech

#Restfull API,#Blockchain

PROJECT 2 : Mice trap connected device

Duration: 4 - 6 Months Department : Robotics / Web

Profile : Engineer in Electronics/Computer Science

JOB DESCRIPTION :

This project consists on digitizing an existent mice trap system that will catch mice at first place and then communicate its relative event to the people in charge of the necessary intervention.

MODULES:

- Electronic Design of the mice trap,
- Digitalize the mice trap,
- Determine the needful technology to communicate the relative information coming from the trap.
- Build a back-office management to handle the communication coming for the mice traps.

Responsable : Mohamed Ali Touati

Interns
1

Technologies

#IoT #WirelessCom #Arduino #Linux #Web

ROBOTIC

PROJECT 1 : Mechanical design of a humanoid Arm

Duration: 4 - 6 Months Department : Robotics

Profile: Engineer in mechanics/mechatronics with excellent mechanical design background

JOB DESCRIPTION :

This project consists on the mechanical design of a 5-DOF robotic arm used for humanoid-type robot.

MODULES:

-State of Art about existent mechanical solutions of robotic humanoid arm and joint actuators,
-Design Study of Planetary and Harmonic gear boxes,
-Design Study of synchronous belt transmission system,
-Torque and Velocity computing,
-Selection of parts: reducers, bearings, seals, ...

Interns
1

Technologies

#Solidworks #Design of Machine Elements
#Power Train #Planetary Gears #Mechanics Calculations
#Surfacing Design #Manufacturing process

Responsable : Warid Jdidi

PROJECT 2 : Design of cooling and sealing system

Duration: 4 Months Department : Robotics

Profile: Engineer in Mechanics/Mechatronics with excellent Simulation background

JOB DESCRIPTION :

This project consists on the thermal system engineering, analysis and simulation for a mobile robot.

MODULES:

-State of Art about existent ventilation and sealing solutions of robotic systems.

-Air cooling system.

-Design Study of water and dust proofing.

-Cooling system seizing and simulation.

-Selection of parts: Fans, Heatsinks, Vent Holes, Sealing gasket...

Interns
1

Technologies

#Solidworks #ANSYS #Design of Machine Elements
#Fluid Simulation #Power Train Cooling
#Battery Thermal Management

Responsable : Warid Jdidi

PROJECT 3 : Design and automation of a Lifter mechanism

Duration: 4 Months Department : Robotics

Profile: Engineer in Mechanics/Mechatronics with mechanical design background

JOB DESCRIPTION :

This project consists on the mechanical design of a linkage mechanism used for packing and unpacking of a humanoid-type robot.

MODULES:

-State of Art about existent mechanical solutions for raising and lowering of heavy systems.

-Design Study of a multiple linkage mechanism.

-Design Simulation of Static and dynamic loads on the system.

- Design Study of dampening and actuation of the system.

-Selection of parts: Linkages, Hinges, Springs, dampeners, actuators ....

Interns
1

Technologies

#Solidworks #Design of Machine Elements #Simulation

Responsable : Warid Jdidi

ROBOTIC

(Computer Science)

PROJECT 1 : Robot localization using artificial landmarks recognition

Duration: 4 Months Department : Robotics

Profile: Engineer in Computer Science / Telecommunication/ Electronics

JOB DESCRIPTION :

This project consists on the design and implementation of an indoor mobile robot navigation system using artificial landmarks recognition. A state of art study have to be conducted and a solution should be selected, implemented and tested.

MODULES:

-State of art about Visual SLAM,
-Landmarks generation & recognition,
-SLAM implementation and test on a simulator,
-Validation using our real robot.
-Design Simulation of Static and dynamic loads on the system.
- Design Study of dampening and actuation of the system.
-Selection of parts: Linkages, Hinges, Springs, dampeners, actuators ....

Responsable : Mohamed GHARDALLOU

Interns
1

Technologies

#Image Processing # OpenCV #SLAM
#Python #C++ #Machine Learning

PROJECT 2 : Mobile Robot motion generation using Motion Tracking

Duration: 4 Months Department : Robotics

Profile: Engineer in Computer Science / Telecommunication/ Electronics

JOB DESCRIPTION :

The capability of a mobile platform to follow a human subject (or a moving object) is of our interest. This project consists on the implementation of a pose-tracking module using a depth camera. Based on the tracked subject, a smooth motion command have to be generated by taking into account the robot dynamics.

MODULES:

- State of art study about existing algorithms,
- Implementation and test on a simulator,
- Validation using our real robot.
-Selection of parts: Linkages, Hinges, Springs, dampeners, actuators ....

Responsable : Mohamed GHARDALLOU

Interns
1

Technologies

#Image Processing # OpenCV #Python
#Geometry #C++ #Machine Learning
#Monte Carlo algorithms

PROJECT 3 : Mobile robot motion tracking using set of cameras

Duration: 4 Months Department : Robotics

Profile: Engineer in Computer Science / Telecommunication/ Electronics

JOB DESCRIPTION :

This project aims to provide a cameras-based motion capture system having as a target a mobile platform. The application should be able to find the robot planner coordinates (x,y) and plot its path.

MODULES:

- State of art study about existing algorithms,
- Implementation and test on a simulator,
- Validation using our real robot.
-Selection of parts: Linkages, Hinges, Springs, dampeners, actuators ....

Responsable : Mohamed GHARDALLOU

Interns
1

Technologies

#Image Processing #OpenCV

#Marker Tracking #C++ #Python

PROJECT 4 : Dashboard web application for a mobile robot

Duration: 4 Months Department : Robotics

Profile: Engineer in Computer Science / Telecommunication

JOB DESCRIPTION :

This project aims to develop a dashboard web application for our mobile robot. This dashboard have to include the following main features: control/configuration of the robot navigation system, preview of a live video stream and robot pc administration.
The Dashboard backend will integrate with the robot system and a well-defined interface should be implemented. On the other hand, the front end should be optimized for tablet and pc use.

MODULES:

- Requirements specification determination,
- System architecture definition,
- Design and implementation of the system.
- Elementary testing and validation,
- Deployment on our real robot.

Responsable : Mohamed GHARDALLOU

Interns
1

Technologies

#Java #Javascript #Linux #Bash #Docker #Python

PROJECT 5 : Indoor robot localization using ultra-wideband technology

Duration: 4 Months Department : Robotics

Profile: Engineer in Computer Science / Telecommunication / Electronics

JOB DESCRIPTION :

Ultra-wide band (UWB) localization is one of the most promising approaches for indoor localization.

In this project, an UWB system will be studied, benchmarked and integrated on a mobile robot.

MODULES:

- State of art study of Ultra-wideband positioning system,
- UWB system tuning and configuration,
- Environment setup and tests,
- Software localization ROS node development and integration to our robot system.

Interns
1

Technologies

#UWB #RF #Localization #Linux #ROS #Python #C++

Responsable : Mohamed GHARDALLOU

PROJECT 6 : Integration of a Mobile/Arm Robot motion control ROS system

Duration: 4 Months Department : Robotics

Profile: Engineer in Computer Science / Telecommunication / Electronics

JOB DESCRIPTION :

This project involves an existing hybrid robot called Digirobot, which is made out of an omnidirectional mobile platform and a 5-axis robotic arm. In this project, we want to develop a software system based on ROS to control this robot. Low level microcontroller software have also to be enhanced regarding motor control and sensors reading.

MODULES:

STM32 firmware update,

- STM32 to raspberry Pi communication (command /feedback over USB),
- Raspberry Pi Linux and ROS setup,
- Robotic arm ROS control node development,
- ROS configuration of MoveIt & navigation stack

Interns
1

Technologies

#STM32 #PID #C++

#Raspberry Pi #Python #ROS

Responsable : Mohamed GHARDALLOU

ROBOTIC

(Electrical)

PROJECT 1 : Electric design of a mobile platform

Duration: 4 Months Department : Robotics

Profile: Engineer in Electrical /Electronics/ Mechatronics

JOB DESCRIPTION :

This project consists on the enhancement of the electrical design of a four-wheeled mobile platform. This design involves the following considerations: power management, cable seizing, and parts selection.

MODULES:

-Electric Design,
-Power management parts selection,
-Connectors selection,
-Wires seizing and cables routing,
-Industrial 24V design

Interns
1

Technologies

#EPLAN #DC #BMS #Industrial Grade #Cabling

Responsable : Houssein LAMINE

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